

ServSensor V4E Lite with 20 or 60 VAC or VDC Dry Contacts

Use this intelligent environmental monitoring device to identify problems before they disrupt your equipment.

Features an embedded Web server and Linux operating system.



Customer Support Information Order toll-free in the U.S.: Call 877-877-BBOX (outside U.S. call 724-746-5500) • FREE technical support 24 hours a day, 7 days a week: Call 724-746-5500 or fax 724-746-0746 • Mailing address: Black Box Corporation, 1000 Park Drive, Lawrence, PA 15055-1018 • Web site: www.blackbox.com • E-mail: info@blackbox.com

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Federal Communications Commission and Industry Canada Radio Frequency Interference Statements

This equipment generates, uses, and can radiate radio-frequency energy, and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

Instrucciones de Seguridad

(Normas Oficiales Mexicanas Electrical Safety Statement)

- 1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
- 2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
- 3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
- 4. Todas las instrucciones de operación y uso deben ser seguidas.
- 5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc.
- 6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.
- 7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.
- 8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.
- 9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.
- 10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.
- 11. El aparato eléctrico deberá ser connectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.
- 12. Precaución debe ser tomada de tal manera que la tierra fisica y la polarización del equipo no sea eliminada.
- 13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.
- 14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.
- 15. En caso de existir, una antena externa deberá ser localizada lejos de las lineas de energia.
- 16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.
- 17. Cuidado debe ser tomado de tal manera que objectos liquidos no sean derramados sobre la cubierta u orificios de ventilación.
- 18. Servicio por personal calificado deberá ser provisto cuando:
 - A: El cable de poder o el contacto ha sido dañado; u
 - B: Objectos han caído o líquido ha sido derramado dentro del aparato; o
 - C: El aparato ha sido expuesto a la lluvia; o
 - D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o
 - E: El aparato ha sido tirado o su cubierta ha sido dañada.

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1. Specifications

Audio — Sampling rate: 8 kHz

- **Certifications** AdRem NetCrunch, Quest Software–Big Brother[®], Castle Rock, HP[®] OpenView[®], IBM[®] Tivoli[®], LoriotPro, Logalot, MRTG[®], SiteScope[®], Somix[®]—WebNM[®] and Denika[®], WhatsUp[®] Gold, Computer Associates Unicenter[®] TNG
- **Components** Manufactured using highly integrated, low-power surface-mount technology to ensure long-term reliability; MX25 processor, 128 MB nano flash; internal on-board memory slot

Configuration — Via Web browser (HTTP/HTTPS)

Expandable Modules — EME1X8: 8-port intelligent sensors module; EME1DC16: 16-port dry-contacts modules

Mean Time Between Failures (MTBF) — 400,000 hours

- Memory 28 MB nano flash
- Network Interface (1) 10/100BASE-T Ethernet RJ-45
- Operating System Embedded Linux
- Processor IM X25 CPU
- Protocols Supported (Client) DHCP, DNS, SMTP, (5) NTP, SNMP
- Connectors Inputs: (8) RJ-45 for connecting sensors; (4) RJ-45 expansion ports; (1) USB Version 1.1 Type A; (1) 2.5" jack for analog audio; (1) RS-485 2-pin terminal box (used for Modbus®);

Dry contacts: EME149A-20, EME149D-20: (20); EME149A-60, EME149D-60: (60)

Output: (1) 2.5" jack for analog audio; (1) 2.5" jack for microphone

Indicators — EME149A-20, EME149D-20: (42) LEDs: (1) Power LED, (1) Link LED, (40) LEDs (Status and Online) for (20) dry contacts;
 EME149D-20, EME149D-60: (122) LEDs: (1) Power LED, (1) Link LED, (120) LEDs (Status and Online) for (60) dry contacts

Temperature Tolerance — Operating: 32 to 131° F (0 to +55° C)

Humidity — 20 to 80%, noncondensing

Power — Input: 100–240 VAC, 47-63 Hz external power supply; Output: 7.0–9 VDC, 3 amps; Consumption: 6.15 watts, 0.82 amps

Size — EME149A-20, EME149D-20: 1.8"H x 17.08"W x 5.4"D (4.6 x 43.4 x 13.7 cm); EME149A-60, EME149D-60: 5"H x 18"W x 3.45"D (12.7 x 45.7 x 8.7 cm)

Weight — EME149A-20, EME149D-20: 5.73 lb. (2.6 kg); EME149A-60, EME149D-60: 6.83 lb. (3.1 kg)

2. Overview

2.1 Introduction

Used for environmental monitoring, the ServSensor V4E Lite identifies problems before they lead to business disruptions. This high-speed, accurate, intelligent monitoring device features a completely embedded host and Linux[®] operating system.

2.2 What's Included

Your package should contain the following items. If anything is missing or damaged, contact Black Box Technical Support at 724-746-5500.

- (1) ServSensor V4E Lite with 20 or 60 Dry Contacts VAC or VDC
- (1) 5-ft. crossover cable
- (2) rackmounting brackets with screws
- (1) power adapter
- (1) power cord
- (21) or (61) 2-wire terminal blocks (installed)
- (1) CD-ROM containing this user's manual and Help files

2.3 Hardware Description

Figures 2-1 through 2-8 illustrate the ServSensors' front and back panels. Tables 2-1 through 2-8 describe their components.

2.3.1 EME149A-20 Front Panel

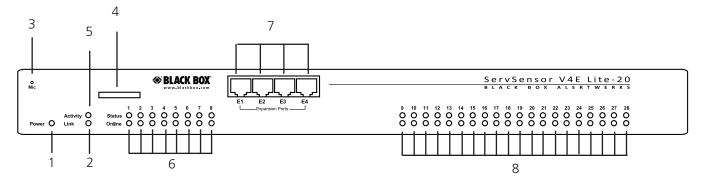


Figure 2-1. Front panel.

	Та	ble 2-1. Front-panel components.
Number	Component	Description
1	Power LED	When the unit is powered on, the power LED will be lit continuously. If the power LED is flashing, there is a problem with the CPU. Contact Technical Support at 724-746-5500 or info@blackbox.com.
2	Link LED	The Link LED indicates network connectivity. It lights when a network is connected to the ServSensor V4E Lite.
3	Mic	The mic is a small hole for access to the internal microphone. Use it as a sound sensor (or use an external mic).
4	SD memory card slot	Place your SD card in the removable SD memory card slot. It can store sounds recorded from the internal microphone and also the current firmware of the unit.
5	Activity LED	The Activity LED flashes when network traffic is sent to or received by the ServSensor V4E Lite.
6	Status/Online LEDs 1–8	The Status/Online LEDs are numbered 1–8. They indicate the connectivity status of the sensors connected to each port. You can also use these LEDs to indicate system status during various operations.
		Additionally, the LEDs can indicate the progress of an upgrade. The red LEDs move from left to right to indicate activity, and all the green LEDs indicate overall progress of the upgrade. When all the red lights are off and the green are on, the upgrade/recovery process is complete.
		These lights also indicate if the unit is operating in safe mode. This is when the unit loads the operating system (OS) with a minimal set of drivers. If your device enters safe mode after rebooting, contact Black Box Technical Support at 724-746-5500 or info@blackbox.com.
		The unit may enter recovery mode if a firmware upgrade is incomplete. In this case, the unit displays a continuously lit row of red LEDs. If this happens, contact Black Box Technical Support at 724-746-5500 or info@blackbox.com.

Table 2-1 (Continued). Front panel components.

Number	Component	Description
7	Expansion ports E1–E4	Use the four expansion ports numbered E1–E4 to connect the 8-port expansion module (EME1X8) and/or the 16 dry-contact expansion module (EME1DC16).
8	(40) LED indicators	There are two LEDs (Status and Online) for each dry contact.

2.3.2 EME149A-20 Back Panel

Figure 2-2 shows the ServSensor's back panel. Table 2-2 describes its components.

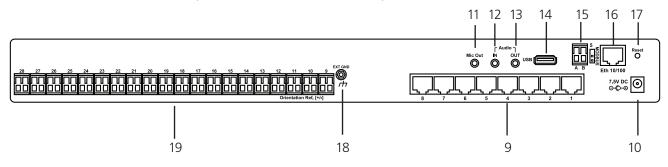


Figure 2-2. Back panel.

Table 2-2. Back panel components.

Number	Component	Description
9	(8) RJ-45 connectors	Use these ports to connect Intelligent Sensors to the ServSensor V4E Lite.
10	Barrel connector	This is a 7.5-VDC plug. Connect a 7.0–9.0-V, 2.5-A power supply (included).
11	Mic out connector	Connect an external microphone for voice modem applications.
12	Audio in	Connect an external microphone.
13	Audio out	Connect the output for external speakers.
14	USB Type A port	Use the USB 1.1 port to connect a USB GBarPRS/GSM compatible modem, a USB Wi-Fi dongle, or a USB Bluetooth® dongle.
15	2-pin terminal block (RS-485 port)	The ServSensor V4E Lite supports Modbus master or slave.
16	RJ-45 10/100 network port	Use this RJ-45 port to connect your ServSensor V4E Lite to the network.
17	Reset	Press this button to reset the ServSensor V4E Lite.
18	EXT GND	Use the EXT. GND connector to externally ground the unit.
19	(20) dry contacts	(20) VAC dry contacts

2.3.3 EME149A-60 Front Panel

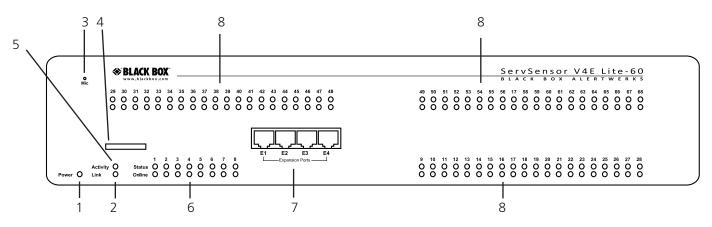


Figure 2-3. EME149A-60 Front panel.

Table 2-3. Front-panel components.

Number	Component	Description
1	Power LED	When the unit is powered on, the power LED will be lit continuously. If the power LED is flashing, there is a problem with the CPU. Contact Technical Support at 724-746-5500 or info@blackbox.com.
2	Link LED	The Link LED indicates network connectivity. It lights when a network is connected to the ServSensor V4E Lite.
3	Mic	The mic is a small hole for access to the internal microphone. Use it as a sound sensor (or use an external mic).
4	SD memory card slot	Place your SD card in the removable SD memory card slot. It can store sounds recorded from the internal microphone and also the current firmware of the unit.
5	Activity LED	The Activity LED flashes when network traffic is sent to or received by the ServSensor V4E Lite.
6	Status/Online LEDs 1–8	The Status/Online LEDs are numbered 1–8. They indicate the connectivity status of the sensors connected to each port. You can also use these LEDs to indicate system status during various operations.
		Additionally, the LEDs can indicate the progress of an upgrade. The red LEDs move from left to right to indicate activity, and all the green LEDs indicate overall progress of the upgrade. When all the red lights are off and the green are on, the upgrade/recovery process is complete.
		These lights also indicate if the unit is operating in safe mode. This is when the unit loads the operating system (OS) with a minimal set of drivers. If your device enters safe mode after rebooting, contact Black Box Technical Support at 724-746-5500 or info@blackbox.com.
		The unit may enter recovery mode if a firmware upgrade is incomplete. In this case, the unit displays a continuously lit row of red LEDs. If this happens, contact Black Box Technical Support at 724-746-5500 or info@blackbox.com.

Table 2-3 (Continued) . Front panel components.

Number	Component	Description
7	Expansion ports E1–E4	Use the four expansion ports numbered E1–E4 to connect the 8-port expansion module (EME1X8) and/or the 16 dry-contact expansion module (EME1DC16).
8	(120) LED indicators	There are two LEDs (Status and Online) for each dry contact.

2.3.4 EME149A-60 Back Panel

Figure 2-4 shows the ServSensor's back panel. Table 2-4 describes its components.

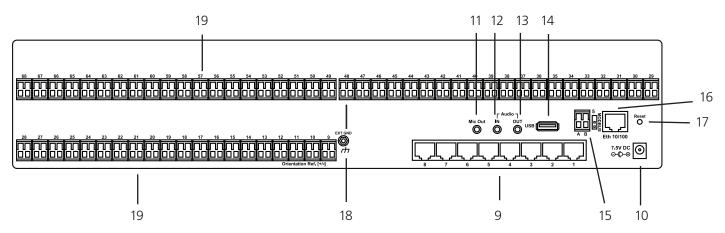


Figure 2-4. EME149A-60 back panel.

Table 2-4. Back panel components.

Number	Component	Description
8	(8) RJ-45 connectors	Use these ports to connect Intelligent Sensors to the ServSensor V4E Lite.
9	Barrel connector	This is a 7.5-VDC plug. Connect a 7.0–9.0-V, 2.5-A power supply (included).
10	Mic out connector	Connect an external microphone for voice modem applications.
11	Audio in	Connect an external microphone.
12	Audio out	Connect the output for external speakers.
13	USB Type A port	Use the USB 1.1 port to connect a USB GBarPRS/GSM compatible modem, a USB Wi-Fi dongle, or a USB Bluetooth [®] dongle.
14	2-pin terminal block (RS-485 port)	The ServSensor V4E Lite supports Modbus master or slave.
15	RJ-45 10/100 network port	Use this RJ-45 port to connect your ServSensor V4E Lite to the network.
16	Reset	Press this button to reset the ServSensor V4E Lite.
17	EXT GND	Use the EXT. GND connector to externally ground the unit.
18	(60) dry contacts	(60) VAC dry contacts

2.3.5 EME149D-20 Front Panel

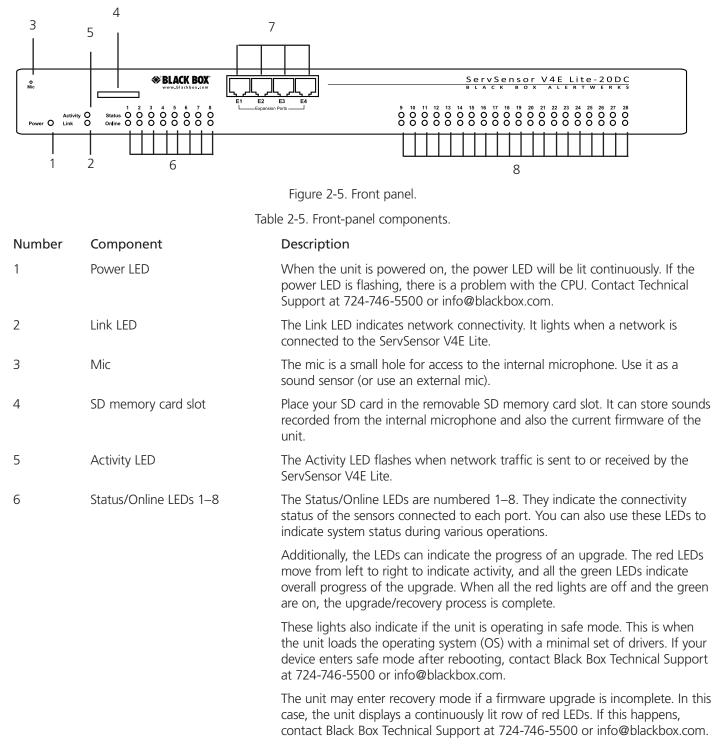


Table 2-5 (Continued). Front-panel components.

Number	Component	Description
7	Expansion ports E1–E4	Use the four expansion ports numbered E1–E4 to connect the 8-port expansion module (EME1X8) and/or the 16 dry-contact expansion module (EME1DC16).
8	(40) LED indicators	There are two LEDs (Status and Online) for each dry contact.

2.3.6 EME149D-20 Back Panel

Figure 2-6 shows the ServSensor's back panel. Table 2-6 describes its components.

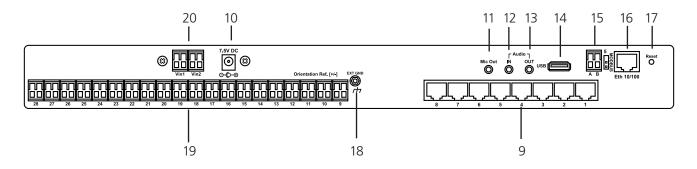


Figure 2-6. EME149D-20 back panel.

Table 2-6. Back-panel components.

Number	Component	Description
9	(8) RJ-45 connectors	Use these ports to connect Intelligent Sensors to the ServSensor V4E Lite.
10	Barrel connector	This is a 7.5-VDC plug. Connect a 7.0–9.0-V, 2.5-A power supply (included).
11	Mic out connector	Connect an external microphone for voice modem applications.
12	Audio in	Connect an external microphone.
13	Audio out	Connect the output for external speakers.
14	USB Type A port	Use the USB 1.1 port to connect a USB GBarPRS/GSM compatible modem, a USB Wi-Fi dongle, or a USB Bluetooth [®] dongle.
15	2-pin terminal block (RS-485 port)	The ServSensor V4E Lite supports Modbus master or slave.
16	RJ-45 10/100 network port	Use this RJ-45 port to connect your ServSensor V4E Lite to the network.
17	Reset	Press this button to reset the ServSensor V4E Lite.
18	EXT GND	Use the EXT. GND connector to externally ground the unit.
19	(20) dry contacts	(20) VDC dry contacts
20	DC power connector	7.5 VDC power inputs

2.3.7 EME149D-60 Front Panel

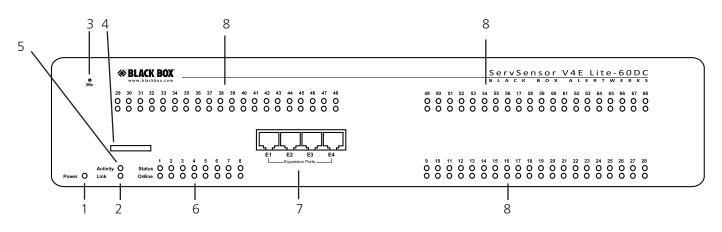


Figure 2-7. Front panel.

Table 2-7. Front-panel components.

Number	Component	Description
1	Power LED	When the unit is powered on, the power LED will be lit continuously. If the power LED is flashing, there is a problem with the CPU. Contact Technical Support at 724-746-5500 or info@blackbox.com.
2	Link LED	The Link LED indicates network connectivity. It lights when a network is connected to the ServSensor V4E Lite.
3	Mic	The mic is a small hole for access to the internal microphone. Use it as a sound sensor (or use an external mic).
4	SD memory card slot	Place your SD card in the removable SD memory card slot. It can store sounds recorded from the internal microphone and also the current firmware of the unit.
5	Activity LED	The Activity LED flashes when network traffic is sent to or received by the ServSensor V4E Lite.
6	Status/Online LEDs 1–8	The Status/Online LEDs are numbered 1–8. They indicate the connectivity status of the sensors connected to each port. You can also use these LEDs to indicate system status during various operations.
		Additionally, the LEDs can indicate the progress of an upgrade. The red LEDs move from left to right to indicate activity, and all the green LEDs indicate overall progress of the upgrade. When all the red lights are off and the green are on, the upgrade/recovery process is complete.
		These lights also indicate if the unit is operating in safe mode. This is when the unit loads the operating system (OS) with a minimal set of drivers. If your device enters safe mode after rebooting, contact Black Box Technical Support at 724-746-5500 or info@blackbox.com.
		The unit may enter recovery mode if a firmware upgrade is incomplete. In this case, the unit displays a continuously lit row of red LEDs. If this happens, contact Black Box Technical Support at 724-746-5500 or info@blackbox.com.

Table 2-7 (Continued). Front-panel components.

Number	Component	Description
7	Expansion ports E1–E4	Use the four expansion ports numbered E1–E4 to connect the 8-port expansion module (EME1X8) and/or the 16 dry-contact expansion module (EME1DC16).
8	(120) LED indicators	There are two LEDs (Status and Online) for each dry contact.

2.3.8 EME149D-60 Back Panel

Figure 2-8 shows the ServSensor's back panel. Table 2-8 describes its components.

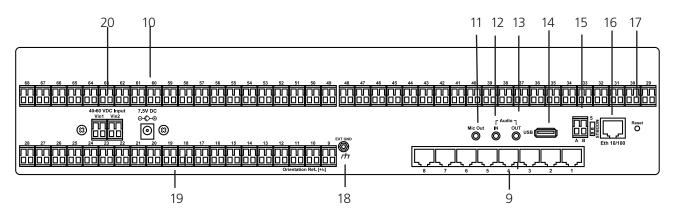


Figure 2-8. EME149D-60 back panel.

Table 2-8. Back-panel components.

Number	Component	Description
9	(8) RJ-45 connectors	Use these ports to connect Intelligent Sensors to the ServSensor V4E Lite.
10	Barrel connector	This is a 7.5-VDC plug. Connect a 7.0–9.0-V, 2.5-A power supply (included).
11	Mic out connector	Connect an external microphone for voice modem applications.
12	Audio in	Connect an external microphone.
13	Audio out	Connect the output for external speakers.
14	USB Type A port	Use the USB 1.1 port to connect a USB GBarPRS/GSM compatible modem, a USB Wi-Fi dongle, or a USB Bluetooth® dongle.
15	2-pin terminal block (RS-485 port)	The ServSensor V4E Lite supports Modbus master or slave.
16	RJ-45 10/100 network port	Use this RJ-45 port to connect your ServSensor V4E Lite to the network.
17	Reset	Press this button to reset the ServSensor V4E Lite.
18	EXT GND	Use the EXT. GND connector to externally ground the unit.
19	(60) dry contacts	(60) VDC dry contacts
20	DC power connector	DC power input

2.4 ServSensor with 20 or 60 Extra Dry Contact Inputs, VAC, or VDC

The 20 or 60 extra dry contact inputs on the ServSensor can be configured as inputs only up to 5 Volts in normal operation. In opto-isolation mode they can input up to 30 Volts DC. This will protect these inputs and the unit from high voltages and spikes.

Opto-isolators provide complete electrical separation between the ServSensor and the dry contact. The base units are therefore protected against possible large voltage spikes caused by lightning, for example.

The figure below shows the jumpers (on the dry contact board) set up to provide opto-isolators support.

Refer to the rear panel of the ServSensor above for the other connections on the rear panel, as they are exactly the same in functionality.

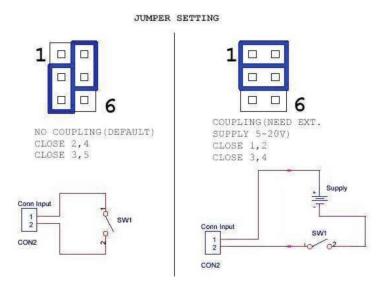


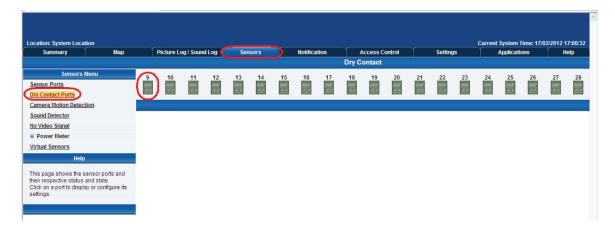
Figure 2-9. Jumper settings.

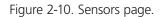
The OID for the extra dry contact inputs is:- .1.3.6.1.4.1.3854.1.2.2.1.18.1.3.<port>

2.4.1 Extra Dry Contact Input Practical Applications

The extra dry contact inputs can be used to monitor many types of equipment, for example, you can run the connection from warning lights on alarm panels to the dry contact inputs, so that when the warning light on the alarm panel is activated, the dry contact is triggered in the unit's Web interface, thus allowing you to send notifications via emails or SNMP traps.

2.4.2 ServSensor with 20 or 60 Extra Dry Contact Web Interface Setup



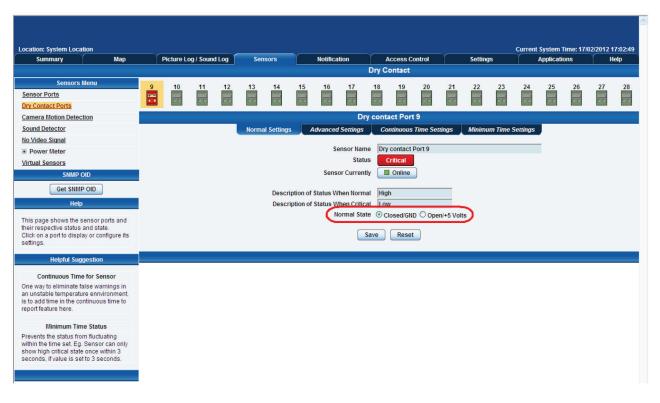


First login to the ServSensor Web interface, then navigate to the Sensors Page, then click on the Dry Contact Ports link in the left hand column. You can now click on the dry contact port to set up that port as shown in the screen shot above.

Location: System Location Summary Map	Picture Lo	og / Sound	iLog 🚺	Ser	isors	-	Notifica	ition	(A	ccess Co	ontrol		Setting	js		System 1 Application		2/2012 1 H	7:01: elp
									Dry C	ontact									
Sensors Menu 🌈	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Sensor Ports		and the second second		and a second			annan .		and the second s		To and			and a	and a second	-			
Dry Contact Ports																			
Camera Motion Detection								D	ry conta	ict Port	9								
Sound Detector			(Norma	al Setting	IS A	Advanced	l Settings	Co	ntinuous	Time Set	tings	Minimu	ım Time	Settings				
No Video Signal							e.	ensor Nai	no Deu	contract	Dort 0					-			
Power Meter							31		us No S		POIL								
Virtual Sensors							Sone	or Curren		Offline	N								
Help							36115	or currer		Omme	1								
This page shows the sensor ports and					Desc	ription of	Status W	hen Norn	nal Hig	ı									
their respective status and state. Click on a port to display or configure its					Desc	ription of	Status W	/hen Criti	cal Lov	1									
settings.							N	ormal Sta	nte 💿 Cl	osed/GNI	O Ope	n/+5 Volt	S						
Helpful Suggestion								C	Save	Reset									
Continuous Time for Sensor																			
One way to eliminate false warnings in																			
an unstable temperature ennvironment. Is to add time in the continuous time to																			
report feature here.																			
Minimum Time Status																			
Prevents the status from fluctuating																			
within the time set. Eg. Sensor can only show high critical state once within 3																			
seconds, if value is set to 3 seconds.																			



In the Normal tab settings we can see that the sensor is currently offline, so to enable the dry contact port we would click on the Offline button.





We can see the dry contact input is now Critical and we can set how we require the Normal State to be as shown above—either in the Closed GND or Open +5VDC. We can also rename our normal and critical state of the input.

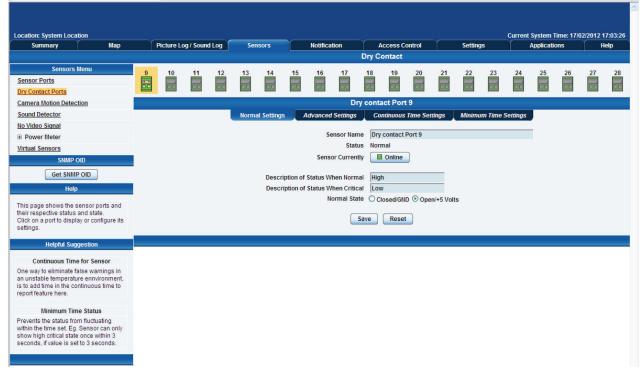


Figure 2-13. Online selected.

We can see that the dry contact input now is in the normal state as shown in the screen shot on the previous page.

Location: System Location															Current	t System ⁻	Time: 17/	12/2012 1	7-04-07
Summary Map	Pictur	e Log / Sour	nd Log	Sen	ISOIS		Notifica	ition	A	ccess Co	ontrol		Setting	js		Applicati			elp
									Dry C	ontact									
Sensors Menu	9 10) 11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Sensor Ports								-	annan Fair Ta				_						
Dry Contact Ports					10.00		10 10				10.00					E E			1.11
Camera Motion Detection								Dr	y conta	ict Port	9								
Sound Detector				Norma	al Settings		Advanced	Settings	Co	ntinuous	Time Set	tings	Minimu	ım Time	Settings				
No Video Signal																			
Power Meter							E	nable Grap	h ○o	n 💿 Off									
Virtual Sensors									Dor	un Wind	ows on Se	aneor Na	mo						
SNMP OID							s	ensors UF		up wind	0 1 3 0 1 3	511501 140	anne						
Get SNMP OID								Open link i		urrent Wi	indows (New M	lindows						
Help													indono						
							1	Filter Statu	s 💿 Ei	nable O	Disable								
This page shows the sensor ports and their respective status and state.							_	_	~	~									
Click on a port to display or configure its							Enabl	le Calenda	r () ()	n 🕑 Off									
settings.									Save	Reset									
Helpful Suggestion									save	Reset									
Continuous Time for Sensor																			
One way to eliminate false warnings in																			
an unstable temperature ennvironment, is to add time in the continuous time to																			
report feature here.																			
Minimum Time Control																			
Minimum Time Status Prevents the status from fluctuating																			
within the time set. Eg. Sensor can only																			
show high critical state once within 3 seconds, if value is set to 3 seconds.																			

Figure 2-14. Advanced settings screen.

If we click on the Advanced tab, we can set the graphing to "on," set the sensor URL, set the Filter Status, and enable the Calendar. (More on the Sensor URL and Filter Status in sections 3.6 and 6.1).

3. Installation

3.1 Setting Up the IP Address

The ServSensor V4E Lite is shipped with the default IP address of 192.168.0.100. Follow the steps listed below to change this IP address to fit your own network configuration.

Before starting, make sure you have these items:

- (1) RJ-45 male CAT5 crossover cable
- (1) PC with Ethernet card or LAN socket
- (1) Power socket for the unit to connect to

To set up the IP address:

1. Connect the ServSensor V4E Lite via its Ethernet port to your computer's Ethernet port with a CAT5 crossover cable.

2. Open a Web browser and type the default IP address (as in Figure 3-1), then press the Enter key.

Google ×	B. B. HOLLING CONTRACTOR AND DESCRIPTION OF	
← → × ③ 192.168.0.100		@ \
🔎 - 💽 Search - 🖉 🍇 Global Neg	s 🗛 Music 🌪 Games	•
+You Web Images Videos Maps News Gmail More +		Sign in 😽
Type the unit default IP		
	Google	
	UUUK	
	Google Search I'm Feeling Lucky	r -
	Steve Jobs, 1955 - 2011	
Waiting for couponbuddy.s3.amazonaws.com		-

Figure 3-1. Google Web Browser screen.

- NOTE: In some cases, your computer might not be able to connect to this default IP address. In this situation, you will need to change the IP address of your PC. See the instructions above.
- 3. After you press the Enter key in Step 2, Figure 3-2 appears. The default password for Admin is "public." Change the password to make your unit secure.

Location: System Location	Log In	Current System Time: 07/01/2000 13:06
	Username Password Login	Enter password and username here

Figure 3-2. User Type/Password screen.

4. Next, the home page will be displayed. It looks similar to the screen shown in Figure 3-3.

Summary	Map	Sound L	.og	Sensors	Notificati		Access Control	Setti	igs	Applicati	ons He
	ary Setting					Sensor Infor	2778 - 278 (B)				
	it Setting		Host Name 🔺		Туре 🔺 🔻	-	Sensor Name 🔺 🔻		Rea	ding 🔺 🔻	Status ▲ ¥
Senso	or Filters	• Mair	Module		Module		Main Module			-	Normal
Sort by : Ho	st Name 💌							_			
	ced Filter	4 200	0/01/01 12:24:07	System power-on		System Log (2 messages)	-			
Display Status			9/12/31 13:11:45	System power-on							
E Display Sensor Type				-,				Click the "	Settings"	tab	
Display Host Name											
Search :											
Apply Filter	Clear Filter										
Concert and the states											
Expand All Modules	Collapse All Modules					System Lo	will be reloaded in 08 secs				
Reload Sensor Interval :	10 secs. Apply					0)010111 200					



5. Click on the "Settings" tab, then click on "Ethernet network" from the list on the left frame of the page. See Figure 3-4.

Summary	Map	Sound Log	Sensors	Notification	Ac	ccess Control	Settings	Applications	He
				í - E	thernet Netw	work			
Setup				Default Interface	Use this inte	erface as default	gateway		
± General					Yes No				
Connectivity				and the second se	10.1.5.87		Enter new IP here		
Ethernet Network	L. S	Select this option		Subnet Mask	255.255.255.0				
Wifi Network				Gateway IP Address	10.1.5.5				
Modbus					10.1.5.5				
SNMP				Ethernet MAC ID					
SNMPTraps			E (1	Ethernet Media Mode			ok		
Bluetooth					Save	set			
Dial-In Modem									
Dial-Out Modem				3. Clie	ck "Save"				
OpenVPN Client									
Serial to Network Proxy									
Server Integration									
System Administrator									
Help	121								
пер									
This page allows the system IP setting configured centrally by DHCP or manu									
conligured centrally by DHCF of manu	ially.								

Figure 3-4. Ethernet Network screen.

To change the IP address of the ServSensor V4E Lite:

- 1. Select Ethernet network.
- 2. Input the new IP address.
- 3. Click the "Save" button.

3.2 Testing the New IP Address with the "Ping" Command

Once you assign the new IP address, use the "ping" command to test the ServSensor V4E Lite. You can also use this command as a diagnostic tool to check whether your unit is connected to the network. See Figure 3-5.

- 1. Click "Start."
- 2. Click "Run."



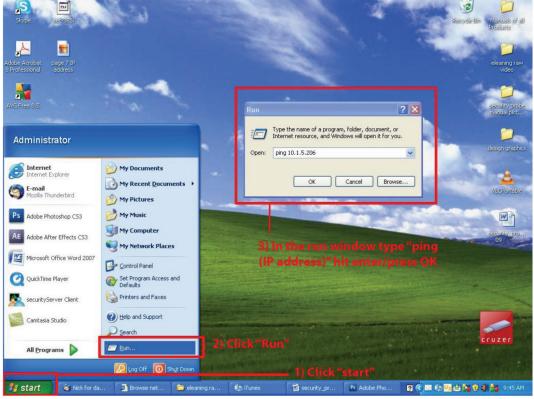


Figure 3-5. Ping Command screen.

4. After you press the "Enter" key, an MS-DOS[®] prompt window showing the test results appears (see Figure 3-6). If you get a message saying "request timed out," either the IP address is incorrect or a ServSensor V4E Lite is not connected to the network.

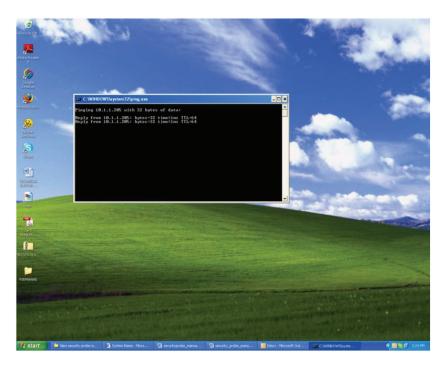


Figure 3-6. MS-DOS window.

3.3 Firmware Upgrade

Make sure you are running the latest firmware. Please contact Black Box Technical Support at 724-746-5500 or info@blackbox.com for the latest firmware.

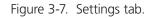
NOTE: This manual refers to the Default IP address, 192.168.0.100. Substitute this for your own IP address if you have changed the default IP address.

This tutorial gives you the information you need to upgrade the firmware.

To get to the tutorial's starting point:

- Log in as administrator.
- Click the "Settings" tab.

Summary Map	Sound Log	Sensors	Notification	Access Control	Settings	Applicati	ions Help
Summary Setting			Sei	nsor Information		_	×
Layout Setting	Host	Name 🔺	Туре ▲▼	Sensor Name 🔺 🔻	and the second	Reading ▲▼	Status 🔺 🔻
Sensor Filters	Main Module		Module	Main Module		-	Normal
Sort by : Host Name			S	ensors status will be reloaded in 07 secs			
Son by Host Name			Sys	tem Log (2 messages)	10		X
Advanced Filter	1 2000/01/01						A
lay Status lay Sensor Type	2 1999/12/31 1	13:11:45 System powe	er-on boot up		Click the "Setting	s" tab	Ā
ay Host Name							~
ch :							
Apply Filter Clear Filter							V
nd All Modules Collapse All Modules							V
Conapse An modules				System Log will be reloaded in 08 secs			
d Sensor Interval : 10 secs. Appl	y						



- 1. Click "System Administrator" and then "System Maintenance."
- 2. Click "Upgrade."

Location: System Location Summary	Мар	Sound Log	Sensors	Notification		Access Control	Settings	Current System Time: 01/01/ Applications	/2000 13:03:52 Help
Summary	мар	Sound Log	Sensors		stem Maint		setungs	Applications	neip
Setup				Clear Syslog	Clear				
General				Clear RRD datalog	Clear	1			
Connectivity			Pe	store Original Settings	Restore	Keep present i	activative acting		
Ethernet Network			Clear All User Data and Re		Clear		-		
Wifi Network						Keep present ne	etwork setting		
Modbus			Backup All	Settings To Backup File	Backup				
SNMP			Restore All Set	tings From Backup File	Restore	Brow			
SNMPTraps					Restore	Keep present i	network setting		
Bluetooth			Send Co	nfiguration To Support	Send	Click here to setup	SMTD Server		
Dial-In Modem				Sue	tem Firmware				
Dial-Out Modem				System Firmware	Upgrade				
OpenVPN Client				System rinnware	opgrade	Check opuate			
Serial to Network Proxy				3.0	lick "Up	grade"			
Server Integration	 ,	. Click on System Ad	ministrator		men op,	Brade			
		. Click on System Ad	ministrator						
Password Checking User & Group Managem	ant								
System Maintenance		Calana (Cartana Mat							
Services and Security	4	. Select "System Mai	ntenance"						
System Log									
Heartbeat Messages									

Figure 3-8. System Administrator, System Maintenance screen.

3. The popup screen shown in Figure 3-9 appears.



Figure 3-9. Reboot prompt.

4. Click "OK." The unit will reboot in Safe Mode. Then you will be redirected to the Safe Mode Web-based interface. This can take some time, so please be patient. The page will display the message shown in Figure 3-10 when rebooting.

and the second secon	And the second
Firmware	e Upgrade
Rebo	otina
Rebo	oting

Figure 3-10. Firmware Upgrade Rebooting screen.

5. After the ServSensor reboots, the page shown in Figure 3-11 appears. Click "Browse" and navigate to the firmware file you downloaded, then click "Upgrade."

			[Safe Mode v. 3.
BOOT: FIRMWARE UPGRADE			
	Firmware	e Upgrade	
	1. Download the firmware file from www.bl 2. Enter the firmware file name Upgrade Click "Upgrade"	ackbox.com on to your local hard disk. Browse Click here to navigate to the upgrade file you downloaded from our website	
		grade firmware	
	waiting to up	grade in niware	
5			

Figure 3-11. Upgrade button.

6. During the process, you will see the messages shown in Figure 3-12.

Upgrade status	
1 %	
Upgrading mega firmware	
This is the second half of the upgrade process. It will take approximately 30 minutes. When this is complete the upgrade status will say "Complete" and the system will reboot automatica During the upgrade process, the red LEDs run from left to right continuously. The green LEDs show the percentage of the upgrade process.	illy.



7. The unit will then reboot. The process is complete when the LEDs are back to their "normal" status.

3.4 Multi-users and Groups Setup

3.4.1 Group Setup

- 1. Log in to the ServSensor V4E Lite with the Administrator password. The default will be "public" if you have not changed this yet.
- 2. Click on the Settings page, then System Adminstrator, then User & Group Management as shown in Figure 3-13.
- NOTE: The following screen diagrams may appear small and hard to read. Please use the zoom feature in your PDF reader program to increase the size of the page to better view these screen diagrams.

Location: System Location							Gurrent System Time: 02/01	1/2000 09:36:18
Summary	Мар	Sound Log	Sensors	Notification	Access Control	Settings	Applications	Help
				User & G	iroup Management			
Setup		241111111				1. Click "S	Settings	
General		Users	Groups	3. Click	the "Groups" tab	14545518		_
Connectivity		User Name 🔺 🔻	Group Name 🔺 🔻		Description	Loo	gin session timeout (minutes)	
Server Integration		Admin *	Administrator	B	uilt-in account for administrator		60	-
System Administrator		User*	User		Built-in account for user		60	
User & Group Management System Maintenance Services and Security System Log Heartbeat Messages	2. Click	: "User & Group Mang	ement"	Add	temove Properties			
Help This page allows enabling, creati changing of the User and Admin	on and password.			©1991 - 2000	All rights reserved			

Figure 3-13. Group Setup screen.

3. Click on the "Go to Group Setup" link that will take you to the Groups page shown in Figure 3-14.

Location: System Location							Current System Time: 02/01/	2000 09:40:16
Summary	Мар	Sound Log	Sensors	Notification	Access Control	Settings	Applications	Help
				User & G	roup Management			
Setup		1000						
<u>General</u>		Users	Groups	i in				-
Connectivity			Group Name 🔺 🔻			Description		
Server Integration			-			-		
System Administrator								
Password Checking				Add	emove Properties			
User & Group Manag				Click "Add"				_
System Maintenance								
Services and Securit	¥							
System Log								
Heartbeat Messages								
Help	1							
This page allows enabling changing of the User and								
	10							
				©1991 - 2000	All rights reserved.			

Figure 3-14. Groups page.

4. Click on the "Add" button to add your groups as shown in Figure 3-14.

Summary Map	Sound Log	Sensors	Notification	Access Control	Settings	Applications	Help
			User & G	roup Management		- (943) 	
Setup	Users						
<u>General</u>	Users	Group	DS				
Connectivity	Group Setup						
Server Integration	dicup order						
System Administrator		Group Name System	n Guest				
Password Checking		Descritption Guest o	of the system				
User & Group Management		25					
System Maintenance			Object		Modify	View	
Services and Security			User Management				
System Log			Connectivity				
Heartbeat Messages			Systems Sensors and Maps				
Help			Notifications				
		Acknowle	edge Sensors and Notification				
This page allows enabling, creation and changing of the User and Admin password.							
and the second second second second			Cance	Finish			

Figure 3-15. User & Group Management screen.

- 5. Enter your group name. For example, we have added a group called "System Guest" and entered our description.
- 6. Check the objects with the Web interface that this group will be able to Modify and View. Then, click the "Finish" button to save your group. (See Figure 3-15.)

							12 Mai: an Iona	
Location: System Location	Мар	Sound Log	Sensors	Notification	Access Control	Pattings	Current System Time: 02/01 Applications	2000 09:45:33 Help
Summary	мар	Sound Log	Sensors		roup Management	Settings	Applications	негр
				User & Gr	oup management			
Setup		Users	Groups					
<u>General</u>								
Connectivity			Group Name 🔺 🔻			Description		
Server Integration			System Guest		Gue	st of the system		
System Administrator			New group shown h	ere		107		
Password Checking				Add	emove Properties			
User & Group Manage	ement							
System Maintenance								
Services and Securit	x 👘							
System Log								
Heartbeat Messages								
Help								
This page allows enabling changing of the User and /	, creation and							
changing of the open and	turnin password.							
				@1991 - 2000	All rights reserved.			

Figure 3-16. System Guest group added.

7	The new g	roup '	"System	Guest"	has beer	added to	our	aroup	list a	is shown	in I	Figure	3-16
1.	The new g	ioup	Jystem	Quest	liga peel	i auueu io	oui	group	list c	3 3110 4411		iguie	5-10.

Location: System Locatio	n						Current System Time: 02/01/	2000 09:47:07
Summary	Map	Sound Log	Sensors	Notification	Access Control	Settings	Applications	Help
				User & Gi	roup Management			
Setu	p							
E General		Users	Groups	en e				
Connectivity			Group Name 🔺 🔻			Description		
Server Integration			System Guest		Gu	est of the system		
😑 System Administrator	2							2
Password Checking				Add	emove Properties			
User & Group Mana	tement				10 C			
System Maintenanc	<u>e</u>				5			_
Services and Secur	ty				<u>1</u>			
System Log								1000
Heartbeat Message	8				After highlighti	ng the group click	"Properties" to modify s	settings
Hel								
This page allows enablin changing of the User and								
1	11							
				©1991 - 2000	All rights reserved.			

Figure 3-17. User & Group Management screen.

8. If you want to modify your group settings, click on the group you want to modify. Then click on the "Properties" button as shown in Figure 3-17.

3.4.2 User Setup

1. Click on the "Users" tab and then click the "Add" button to add the new users to your groups as shown in Figure 3-18.

Location: System Location							Current System Time: 02/01	
Summary	Мар	Sound Log	Sensors	Notification	Access Control	Settings	Applications	Help
				User & G	roup Management			
Setup		Users	Groups					
Connectivity		User Name 🔺 🔻	Group Name 🔺 🔻		Description	Logir	n session timeout (minutes)	
Server Integration		Admin * User *	Administrator User	Bu	uilt-in account for administrator Built-in account for user		60 60	
Password Checking User & Group Manage System Maintenance Services and Security		* Cannot remove.		Add	temove Properties			
System Log Heartbeat Messages								
Help This page allows enabling, changing of the User and A	creation and dmin password.			After sele	ecting "Users" Click "Add	r		
				©1991 - 2000	All rights reserved.			



2. Enter your user details as shown in Figure 3-19. In our example, we have entered Bob Smith as your Guest into our "System Guest" group. We have also added the option so that this user cannot change his login password. After adding your users for each group, click the "Finish" button to save each user.

Location: System Location Summary Map	Sound Log	Sensors	Notification	Access Control	Settings	Current System Time: 02/01/2 Applications	:000 09:54:49 Help
			User & G	roup Management			
Setup General Connectivity Server Integration System Administrator Password Checking	Users User Setup Enter the user	Groups name, password, descritption a		r of the group. User Details			
User & Group Management System Maintenance Services and Security System Log Heartbeat Messages Help	Lo	User Name Password Confirm Password Description gin session timeout (minutes) Member of Group	••••• Guest 60	to Group Setup	🕅 User Cann	oot Change Password	
This page allows enabling, creation and changing of the User and Admin password.			Canc	el Finish Click "F	Finish" when you h data en	nave completed your htry	
-			©1991 - 2000	All rights reserved.			

Figure 3-19. Enter user details.

3. The new user has been entered into our list of users.

Location: System Location							Current System Time: 02/01	/2000 09:57:16
Summary	Мар	Sound Log	Sensors	Notification	Access Control	Settings	Applications	Help
				User & Gr	oup Management			
Setup								
General		Users	Groups					
Connectivity		User Name 🔺 🔻	Group Name 🔺 🔻		Description	Log	in session timeout (minutes)	
Server Integration		Admin *	Administrator	Buil	It-in account for administrator		60	
System Administrator		User*	User		Built-in account for user		60	
Password Checking		Bob Smith	System Guest		Guest		60	
User & Group Manage	ement	* Cannot remove.						
System Maintenance	11 - 12 - 12 - 12 - 12 - 12 - 12 - 12 -							
Services and Securit				Add Re	move Properties			
System Log								
Heartbeat Messages	L							
Help								
This page allows enabling	, creation and							
changing of the User and	Admin password.							
				©1991 - 2000 A	All rights reserved.			
1								

Figure 3-20. User list.

4. To modify a user's setting, click on the user to select it, then click the "Properities" button as shown in Figure 3-21.

Location: System Location Summary Map	Sound Log	Sensors	Notification	Access Control	Settings	Current System Time: 02/01/ Applications	2000 09:58:18 Help
Summary Map	Sound Log	Sensors		bup Management	Settings	Applications	нер
Setup	-		User a on	Sup management			
General	Users	Groups					
Connectivity							
	User Name 🔺 🔻	Group Name 🔺 🔻		Description	Login	session timeout (minutes)	
Server Integration	Admin *	Administrator		t-in account for administrator		60	
System Administrator	User * Bob Smith	User System Guest		Built-in account for user Guest		60 60	
Password Checking	Bobsiniu	System Guest		Quest		00	
User & Group Management	* Cannot remove.						
System Maintenance	Contraction and						
Services and Security			Add Rei	move Properties			
and the second				After highlighting vo	ur user colect "Prope	erties" to modify settin	
System Log	1.0			Alter highlighting yo	ui usei selecti Fiope	stues to mouny settin	iys.
Heartbeat Messages							
Help							
This page allows enabling, creation and changing of the User and Admin password.			©1991 - 2000 A	ill rights reserved.			

Flgure 3-21. Properties button.

3.5 Services and Security

3.5.1 Active Services Application (Disabling)

Notification	Access Control	Settings
Service	s and Security	
Act	ve Services	
🗖 N	agios	
S S	ecure Shell	
V T	elnet	
V W	eb Interface (HTTP)	

Figure 3-22. Services and Security screen.

You can enable or disable the Nagios, Secure Shell, and Telnet applications running on the unit to make it more secure.

3.5.2 Closing or Changing Ports Disabling HTTP and Enabling HTTPS

Notification	Acce	ss Control	Settings
Se	rvices and Secu	ırity	
	Active Services		
	 Nagios Secure Shell Telnet Web Interface (HTTP)	
Active Services	port to use 8 Secure Web Int port to use 4		

Figure 3-23. Active services.

You can also close or change the ports used to access the unit's Web interface, disable HTTP, and enable HTTPS only.

The "s" at the conclusion of HTTPS stands for secure. The SSL/TLS connection type is used primarily for high-value sites or "pages," to make it more likely to be unreadable to someone at the end points.

The traffic between client and the ServSensor V4E Lite is not cached along the various units as it moves across the Internet, so it can't be accessed by someone after the connection is terminated.

3.5.3 The SNMPv3 SSL Security Feature

Notification	Access Contro	ol Settings
Se	rvices and Security	
	Active Services	
Active Services		Available Port ement Protocol Version 1 (SNMPv ement Protocol Version 3 (SNMPv3 (ser2net)

Figure 3-24. Add Key screen.

Use the SNMPv3 SSL (Secure Sockets Layer), which is the standard security technology for establishing the encrypted link betwen the ServSensor and the Web browser. The link ensures that all data passed between the ServSensor and the browser remains private and integral.

SNMPv3 provides important security features:

- Confidentiality—Encrypts packets to prevent snooping by an unauthorized source.
- Integrity—Message integrity to ensure that a packet has not been tampered with in transmit.
- Authentication—To verify that the message is from a valid source.

🕲 Upload SSL Key - Mozilla Firefox 💶 💷	×
http://10.1.1.162/upload5K.php?PHP5E55ID=82e1629ed458be46bb71a6f4dd38eace	2
Select ssl key	
File : Browse Add File file name must be userkey.pem	
Close	1



3.5.4 Active Security

In the active security section, you can enable users who are logged into the unit's Web interface to "Acknowledge" alarms, which is normally reserved only for the Administrator.

When the unit boots up, it will announce the IP address that it has been configured with. As an added security feature, this announcement can be disabled so that the IP address remains unknown.

	Active Security
Active Security	 Allow Users to Acknowledge Alarms Announcement IPAddress When Login
Save	Reset

Figure 3-26. Active Security screen.

3.5.5 The NAC or Network Access Control Security Feature



Figure 3-27. Network Access Control screen.

The NAC or Network Access Control feature enables you to restrict access to the Web interface for only certain IP addresses, or deny access to the Web interface for only certain IP addresses.

3.6 Setting Up a Sensor

This section describes the basic setup of a sensor, using a Black Box temperature sensor as an example. If you require information on specific functions of a particular sensor, then download the manual for that sensor from our Web site, www.blackbox.com.

1. Plug the sensor into one of the RJ-45 "intelligent sensor ports" on the ServSensor's rear panel. In this example, we will use Port 1. See Figure 3-28.

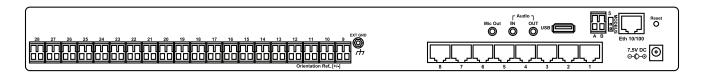


Figure 3-28. Intelligent sensor Port 1.

2. Point your browser to the ServSensor's IP address (the default is 192.168.0.100). Log in as the administrator using your administrator password (the default is "public"). You will then be taken to the summary page shown in Figure 3-29.

Summary	Map	Sound Log	Sensors	Notification	Access Control	Settings	Applications	Help	
Summa	ary Setting			Sensor I	nformation				
Layout Setting		Host Nam	e 🔺	Туре 🔺 🔻	Sensor Name 🔺 🔻		Reading 🔺 🔻	Status 🔺 🔻	
Sensor Filters		Main Mo	dule	Temperature	Temperature Port 8		27.0 °C	Normal	
Sysio	g Filters				s status will be reloaded in 10 secs				
Sort by :	Date	in the second		System L	.og (0 messages)				
	tems per page 10 -								
		1							
E Display Log Level	ced Filter	Sensor Information is listed here							
E Display Log Type									
Display Notification Display Sensor Type									
Display Sensor Statu									
Apply Filter Clea	r Filter Clear Syslog								
Apply men	Cital Systeg	System Log will be reloaded in 09 secs							
Reload Syslog Interval : 1	0 secs. Apply								
				©1991 - 2000 All	sinkle second				

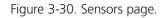
Figure 3-29. Summary page.

The temperature sensor should be listed, along with its current reading and status.

This summary page enables you to quickly see which sensors are connected and their status, view the system log, and also view footage from any connected cameras. Next are some of the tools the Web-based interface provides for getting feedback from the sensors.

3. Click on the temperature sensor's name (indicated in Figure 3-29). This will bring you to Figure 3-30, the Sensors page.

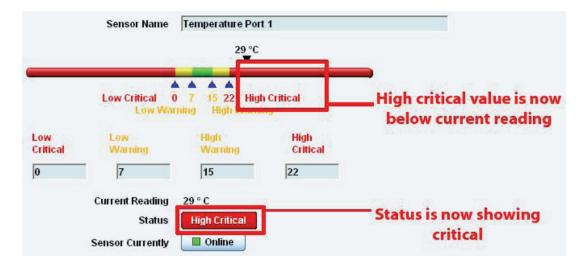




NOTE: Another way to access this page is to click on the "Sensors" tab at the top of the page.

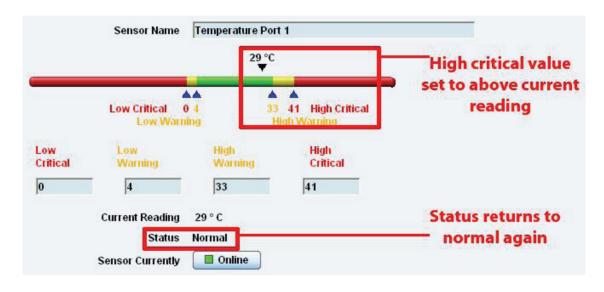
3.6.1 Notification Thresholds

From this page, you can carry out various operations as indicated above. You can also view the current status (normal, low critical, high critical, etc). In Figure 3-30, the sensor indicates a temperature of 27° C and a status of Normal. If you click on the blue marker arrow next to the "Threshold adjustment" label (shown in Figure 3-30), you can drag this marker to re-configure the thresholds. After dragging the marker, click "Save." In Figure 3-31, you can see that this marker has been moved to make a new threshold, and the sensor status has changed along with it.





If the marker is then dragged back above the current temperature reading, the status should return to a normal condition again. (See Figure 3-32.)



NOTE: If this does not happen right away, press the browser's refresh button.

Figure 3-32. Normal status indicated.

If you want to take a sensor offline, then click on the "Sensor Currently" button. This will place the sensor offline and you won't have to physically unplug it. See Figure 3-33.

Current Reading	29 ° C	
Status	Normal	Click this button to
Sensor Currently	Online	take a sensor offline

Figure 3-33. Sensor Online/Offline screen.

Your page will look similar to Figure 3-34 after you take the sensor offline.

Summary	Map	Sound Log	Sensors	Notification	Access	Control	Settings	Applications	Help
					Sensor Setting	js			
Sensors Me	nu				Host Name Main I	Module			
ensor Ports					Host Name Main I	Module			
xpansion Boards					Save Res	et			
ound Detector									
Power Meter									
Irtual Sensors		1	2	3		5	6	7	
Help	Ť				4				8
his page shows the sense	Auto Se	nse 🔲 Auto Sense	Auto Sense	Auto Sense	Auto Sense	Auto Sense	Auto Sense	Auto Sense	Auto Sen
spective status and state.	Statu	-	•	•	•	•	٠	•	•
lick on a port to display or ettings.	configure its Online	•	٠	•	•	•	•	•	•
		TITITIE	[TETEOTEC]]	TITOTICE	TITUTIOT]	[TETETTET]	(TOTOTICO')	[TITEITCE]	TITUTIOT
					- <u>2</u> -3-	- <u>1</u>	- <u>*</u> =*		- <u>6</u>
		N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
			0100	1 - 2000 All rights reserv	bo				
			0100	Looo Harrightereoor		110.0 14 (2.25)			The states
						The shaded :	sensor icon indica	ates that the sens	or is offline

Figure 3-34. Sensor Offline screen.

To bring a sensor back online, select the type from the drop-down menu and click "Save." See Figure 3-35.

Location: System Location								Current System Tim	e: 02/01/2000 11:26:40
Summary Map		Sound Log	Sensors	Notification	Acce	ess Control	Settings	Applications	Help
					Sensor Set	tings			
Sensors Menu		1	2	3	4	5	6	7	8
Sensor Ports	Auto Sense	Auto Sense	Auto Sense	Auto Sense	Auto Sense	Auto Se	ense Auto Sense	Auto Sense	Auto Sense
Expansion Boards	Status	•						•	
Sound Detector	Online								
Power Meter						[
Virtual Sensors		11101100	TITUTION	THURSD	11101100	11101100		[BEBDEROO]	11101100
Help						- Kanasa			
This page shows the sensor ports and their		N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
respective status and state. Click on a port to display or configure its									
settings.									
				Please reconnect th	e sensor or select	your sensor for thi	is port below.		
	-			Select sensor fo	this part 4 20	mAmp 🔽	Save Click Save		
				Select sellsor it	4-20	mAmp	Save Click Save		
					AC V Airflo	oltage			
				1	Digita	al Voltmeter			
			©199	1 - 2000 All rights reserv		contact I/O Sensors			
						Level Sensor d Rope			
					Motic	n			
					Powe	er e Switch			
					Relay	/			
					Secu				
			Select sensor from	m drop down me		ke Detector perature			
Done					IN STO	perature	Internet Protecte	d Mode: On	🖓 🕶 🔍 100% 👻

Figure 3-35. Select Sensor Type screen.

3.6.2 Advanced Sensor Settings

Click on the Advanced Settings tab to get the options shown in Figure 3-36.

Location: System Location								Current System Tim	e: 17/02/2012 17:15:42
Summary	Мар	Sensors	Noti	ification	Access Control	Setting	s	Applications	Help
					Sensor Setting	gs			
Sensors Menu		1	2	3	4	5	6	7	8
Sensor Ports	Auto Sense	Auto Sense	Auto Sense	Auto Sense	Auto Sense	Auto Sense	Auto Ser	nse Auto Sense	Auto Sense
Expansion Boards	Status								
Power Meter	Online								-
Virtual Sensors									
SNMP OID		00000000	0000000	0000000	[DEBERGO]	DIBDIDCO]			
Get SNMP OID							1 / E		
Help		N/C	N/C	N/C	N/C	N/C	Temperatu	ure Water	Dual Sensors
This page shows the sensor ports					Dual Temperatu	ure 🔻			
and their respective status and state.			Normal Settings	Advanced S	ettings Continuou	s Time Settings	Minimum Tin	ne Settings	
Click on a port to display or									
configure its settings.						eit 🔍 Celsius			
Helpful Suggestion					Rearm 2				
					ling Offset 0	-			
Rearm				Data Colle	ction Type Average				
One way to reduce the amount of false warnings when				Di	splay Style Basic Sty	da 🔘 Causa Stula			
temperatures are frequently fluctuating, is to set the "Rearm"				Di	Basic Sty	le O Gauge Style			
feature here. This is similar to the				Check rate	of change O Enable	Disable			
"Continuous Time" feature as it will filter out, or not allow									
additional alerts to be sent if the				En	able Graph 💿 On 🖲 Of	ff			
temperature fluctuates within the degree this has been set to					Dopup Min	dows on Sensor Nan			
				Se	nsors URL	uows on sensor nan			
Continuous Time for Sensor						Vindows 💿 New Wi	ndowe		
One way to eliminate false				0	Current v		inuows		
warnings in an unstable temperature ennvironment, is to				Fi	Iter Status 💿 Enable 🔇	Disable			
add time in the continuous time to									
report feature here.				Enable	Calendar 💿 On 🖲 Of	ff			
Minimum Time Status									
Prevents the status from					Save	et			
fluctuating within the time set. Eg. Sensor can only show high critical					Set Thermostat On	line			
state once within 3 seconds, if									
value is set to 3 seconds.									

Figure 3-36. Advanced Sensor Settings screen.

Advanced Mode Functions:

Dua	I Temperature ▼	
Normal Settings Advanced Settings	Continuous Time Settings	Minimum Time Settings
Units	© Fahrenheit [©] Celsius	
Rearm	2	
Reading Offset	0	
Data Collection Type	Average 👻	
Display Style	Basic Style C Gauge Style	
Check rate of change	🗇 Enable 🔘 Disable	
Enable Graph	© On ◉ Off	

Flgure 3-37. Advanced mode functions, units.

Units: Changes units from C to F or vice versa.

Dual Temperature ▼							
Normal Settings	Advanced Settings	Continuous Time Settings	Minimum Time Settings				
	Units Rearm Reading Offset Data Collection Type	2					
	Display Style	Basic Style Cauge Style					
	Check rate of change	🔘 Enable 🖲 Disable					
	Enable Graph	© On ◉ Off					

Figure 3-38. Advanced mode functions, rearm.

Rearm: The Rearm parameter is useful for sensors, such as the temperature and humidity sensors, whose values can vary.

This prevents the sensor from flickering between two states. For example, if the Warning High threshold for the temperature sensor is set to 80 degrees, and the sensor temperature varies between 79 and 80, you could be faced with a very large number of e-mails, traps, and events logged. The Rearm parameter prevents this by forcing the temperature to drop by the Rearm value before changing the state back to normal. In this example, if Rearm is set to 2, then the sensor would have to drop from 80 down to 77 before the status would change from Warning High back to normal.

Dual Temperature 🔻							
Normal Settings Advanced Setti	ngs Continu	ous Time Settings	Minimum Time Settings				
	Units © Fahren Rearm 2	heit 🖲 Celsius					
Reading		5					
Data Collectio		-					
Displa	y Style 💿 Basic	Style 🔘 Gauge Style					
Check rate of o	change 💿 Enable	Oisable					
Enable	Graph 🔘 On 🍭	Off					

Figure 3-39. Advanced setings, reading offset.

Reading offset: A calibration tool. If you want to calibrate the temperature sensor, for example, you could enter an offset value of 5. This means that if the sensor reads 20 degrees then it would record as 25 degrees. This figure can also be a minus figure (for example, -5 would show 15 degrees instead of 20).

Dual Temperature 🔻							
Normal Settings	Advanced Settings	Continuous Time Settings	Minimum Time Settings				
	Units	🛇 Fahrenheit 💿 Celsius					
	Rearm	2					
	Reading Offset	0					
	Data Collection Type	Average 🚽					
	Display Style	Basic Style Cauge Style					
	Chaok rate of change						
	Check rate of change	🔍 Enable 🔘 Disable					
	Enable Graph	🛇 On 🖲 Off					
		Popup Windows on Sensor Nar	ne				
	Sensors URL						
	Open link in	Current Windows O New W	indows				
	Filter Status	Enable Oisable					
	Fachla Calandar						
	Enable Calendar	© On					
	Sa	ve Reset					
	Set T	hermostat Online					

Figure 3-40. Advanced settings, data collection type.

Data Collection Type

This refers to the data collection from the sensor and how the data is then displayed on the graphs.

There are three options for collection of data: Average, Highest, and Lowest. The default setting is "Average."

When the data collection type is set to "Average," the output graphs for the daily, monthy, and yearly all have the same size on the screen. For the daily graph, each data point on the graph is one data point collected from the sensor. But for the monthly and yearly graph, to display more data into the same size as for the daily graph, some consolidation on the data is needed. One data point on the monthly and yearly graph is the average of the sensor data in a range.

The maximum and minimum values showing on the monthly and yearly graphs are the value of this consolidated data and not the raw data over that period of time.

When the Data Collection Type is set to the highest setting, then you will get the graphing output dsiplaying the sensor's highest reading. This is the same for the lowest setting.

	Dual	Temperature 🔻			
Normal Settings	Advanced Settings	Continuous Time Settings	Minimum Time Settings		
	Units	Fahrenheit Ocelsius			
	Rearm	2			
	Reading Offset	0			
	Data Collection Type	Average 👻			
	Display Style	◉ Basic Style ◎ Gauge Style)		
	Check rate of change	© Enable 🖲 Disable			
	Enable Graph	© On ◉ Off			
		Popup Windows on Sensor Na	me		
	Sensors URL				
	Open link in	。 Current Windows © New W	lindows		
	Filter Status	Enable Disable Disable			
	Enable Calendar	© On [●] Off			
Save Reset Set Thermostat Online					

Figure 3-41. Advanced settings, display style.

Display Style

You can keep the sensors "Dislplay Style" in the Web interface as the Basic Style (slide bar) or you can change it to "Gauge Style."

	2	3		4	5	
ense	Auto Sense	Auto Sense	Au	to Sense	Auto Sense) [🗖 A
	•	•		•	•	
	•			•	•	_
	THINKING					ļ
	You have selected	the gauge style. to manually edit the se	neor etat	us color and	description	Ten
		ave the changes for this			description.	Ten
				ок	Cancel	Minim
			Rearm	2		
		Reading) Offset	0		
		Data Collection	on Type	Average	-	
		Displa	ay Style	O Basic S	tyle 🖲 Gauge Style	
		Check rate of	change	© Enable	Disable	
		Enable	Granh	0.0		

Figure 3-42. Gauge Style screen.

When switching to the Gauge Style type, you will first be prompted with the popup dialog box shown above.

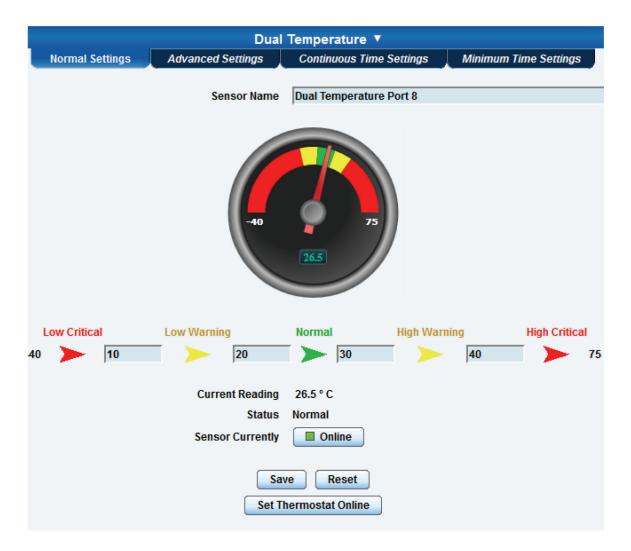


Figure 3-43. Sensor threshold levels.

You will now see the new display where you can set the sensor's threshold levels as shown above.

Dual	Temperature 🔻	
Normal Settings Advanced Settings	Continuous Time Settings	Minimum Time Settings
Units Rearm Reading Offset Data Collection Type	 ○ Fahrenheit [®] Celsius 2 0 Average ▼ 	
Display Style	Basic Style Gauge Style	
Advanced Status Text and Color	Low Critical	
	Low Warning	
	Normal	
	High Warning	
	High Critical	
	Sensor Error	
Check rate of change	🛇 Enable 🔘 Disable	

Figure 3-44. Advanced Settings Text and Colors screen.

After clicking on the "Advanced Settings" tab, you can change the text and colors for each sensor threshold as shown in the screen above.

	Dual	Temperature 🔻	
Normal Settings	Advanced Settings	Continuous Time Settings	Minimum Time Settings
	Units	🔘 Fahrenheit 🔘 Celsius	
	Rearm	2	
	Reading Offset	0	
	Data Collection Type	Average 👻	
	Display Style	◉ Basic Style ◎ Gauge Style	
<u> </u>	Check rate of change	🖲 Enable 🔘 Disable	
Махі	num acceptance of change	10 🗸 %	
	Period of time	5 🖵 minutes	
	Direction	Both 👻	
	Status when exceeds limit	High Critical 👻	
	Enable Graph	© On ● Off	

Figure 3-45. Advanced Settings, Check Rate of Change screen.

Check rate of change

When enabling the "check rate of change" feature for the sensor, you can set the rate in a percentage ranging from 1% to 80% over a period of time ranging from 1 to 20 minutes. You can set the direction to Up, Down, or Both, and you can set the Status when the limit is exceeded to show either High Critical or Low Critical.

You can tie this sensor alert to any notification. Use it with a fuel level sensor to alert you to theft of fuel or leaks in storage tanks.

Continuous Time Settings and Minimum Time Settings Tabs

The following advanced functions set the time frame in which the system should delay a notification being triggered when a sensor gives a reading that exceeds the thresholds (high warning, normal, etc).

Continuous Time to Report High Critical: This helps to eliminate unnecessary messages during minor fluctuations. You can set the amount of time to delay a notification of a status change from high warning to high critical. Enter the time in seconds and press the "Save" button. The amount of time that you can enter is between 0 and 65535 seconds, which equals approximately 18 hours.

Continuous Time to Report High Warning: As above, but delays notification for "High Warning."

Continuous Time to Report for Normal: As above, but delays notification for return to "Normal" state.

Continuous Time to Report for Low Warning: As above, but delays notification for "Low Warning" state.

Continuous Time to Report for Low Critical: As above, but delays notification for "Low Critical" state.

Continuous Time to Report for Sensor Error: As above, but delays notification being sent for sensor going into an error state.

Example: An airflow sensor or humidty sensor may have temporary drops in readings that are normal operating characteristics; a logical time limit is set to show abnormal conditions.

Enable Calendar: If you select this option, the screen shown in Figure 3-46 will be displayed.

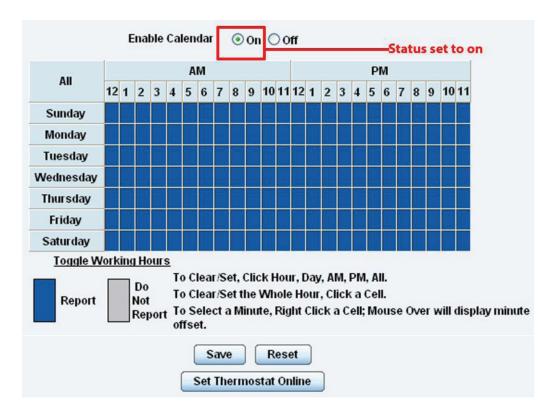


Figure 3-46. Enable Calendar Status screen.

In this example, we want to monitor an office building between the hours of 7 PM–9 AM Monday–Friday only. You can see in this picture we have selected the "Do Not Report" option for the hours in which we do not want to receive any notifications or have any events logged. You change the status of that time frame (Report/Do Not Report) simply by clicking on the square. This will change it from blue to gray; a second click will return it to blue.

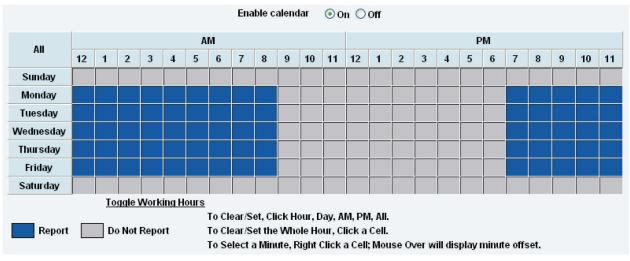


Figure 3-47. Enable Calendar screen.

3.7 Using an Internal Mic as a Sound Detection Sensor

You can use the internal microphone (or an external plugged into the line in jack) as a sound detector.

This tutorial provides you with the information you need to set up the internal mic as a sound detection sensor.

To get to the starting point of this tutorial:

- Log into the Web based interface.
- Click on the Sensors tab.
- 1. Click "Sound Detector" under the Sensors menu. See Figure 3-48.
- 2. Click "Advanced Mode."
- 3. After you click on the Advanced Mode button, you'll see the advanced options available. (See Figure 3-49.)

Location: System Location							Current System Time	e: 02/01/2000 11:34:56
Summary	Мар	Sound Log	Sensors	Notification	Access Control	Settings	Applications	Help
				So	und Detector			
Sensors M	lenu		Normal Settings	Advanced Settings	Continuous Time Se	ettings Minimum T	ime Settings	
Sensor Ports		1. Click Sensors			-			
Expansion Boards				Sensor Name	Sound Detector			
Sound Detector	2. (Click "Sound Detector						
Virtual Sensors								
Help								
This page allows you to cor microphone as a Sound De This can then enable threst noises, or lack of noise, to t Notifications. Thresholds are set using th	etector. holds of loud trigger	CI	ck "Advanced Set	tings"				
Helpful Sugge	estion							
Rearm			Low Critical	Low Warning			ligh Critical	
One way to reduce the amo warnings when temperatur- fluctuating, is to set the "Re here. This is similar to the "d feature as it will filter out, or additional alerts to be sent fluctuates within the degree to	res are frequently earm" feature Continuous Time" r not allow if the temperature		0 🔪 10	Status Sensor Currently	- % No Status Coffline ave Reset	80	100	
Continuous Time I	for Sensor							
One way to eliminate false								

Figure 3-48. Sound Detector tab.

Recording Source	Internal Microphone 💌
Microphone Boost (+20dB)	● On ◎ Off
Microphone Sensitivity	◎ 0 ◎ 20 ◎ 40 ◎ 60 ◎ 80 ◎ 100
Pulse Length	0 Millisecond
Rearm	5 Percent
Data Collection Type	Average 💌
Display Style	Basic Style Gauge Style
Advanced Status Text and Color	Low Critical
	Low Warning
	Normal
	High Warning
	High Critical
	Sensor Error
Enable Graph	On Off
	Popup Windows on Sensor Name
Sensors URL	
Open link in	Current Windows O New Windows
Enable Calendar	On Off
Sa	ve Reset

Figure 3-49. Advanced options.

Recording Source: Here you can choose either internal or external microphone.

Microphone Boost (+20 dB): Boosts the microphone by 20 dB.

Microphone Sensitivity: The level of sensitivity that can be set.

For example, if you set the level to 80, the microphone will detect more sound than if the level were set at 20.

Pulse Length: This defines the minimum duration of a sound to trigger an alert notification.

Rearm: The Rearm parameter prevents the sensor from flickering between two states. For example, if the Warning High threshold for the sound sensor is set to 80 and the sensor temperature varies between 79 and 80, a very large number of e-mails, traps, and events would be logged. The Rearm parameter prevents this by forcing the signal level to drop by the Rearm value before changing the state back to normal. In this example, if Rearm is set to 2. then the sensor would have to drop from 80 down to 77 before the status would change from Warning High back to normal.

Data Collection Type: There are three settings for this parameter: lowest, highest, and average. Data will be collected for the lowest, highest, or average sound reading accordingly.

Advanced Status Text and Color: Here you can select to change your display text and warning colors.

NOTE: As with all the other sensors, you can now set up the sound detector to be attached to a notification. Then, when your thresholds are broken, it will trigger a specified type of notification.

3.8 Expansion Ports

The ServSensor has four expansion ports that enable you to connect up to four daisychainable expansion modules. The available expansion modules are an 8-port intelligent sensor board (EME1X8) and an opto-isolated (16) dry-contact expansion module (EME1DC16). In this section, we will go through the basic setup of the 8-port intelligent sensor board. If you need information on specific functions of a particular sensor or expansion board, then please refer to the relevant manual for that product.

1. Plug the expansion board into one of the four ports located on the front panel of the unit. These are numbered E1–E4. See Figure 3-50.

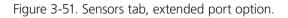


Expansion boards plug into these ports

Figure 3-50. Plug expansion boards into these ports.

2. From the summary page, navigate to the "Sensors" tab. Then click "Extended port" as outlined in Figure 3-51.

Location: System Location						Current System Time:	06/04/2000 40-42-22
Summary Map	Sound Log	Sensors	Notification	Access Control	Settings	Applications	Help
		-	5	Sensor Settings			
Sensors Menu				Expansion Port1			
Sensor Ports Expansion Port1 Expansion Port1 Expansion Port2 Expansion Port3	Expansion Port1	odule 0A000764	Click on the "Sense	ors" tab			
Expansion Port4 Sound Detector				Expansion Port2			
Power Meter		Then click on "	Expansion Boards"				
Virtual Sensors Help							
Click on a port to display or configure its	Expansion Port2						
settings.				Expansion Port3			
Move E-module Settings If you need to move your sensor setting from one E-module to another, first connect the expansion modules, then simply drag the E- module icon to the E-module you would like to move the settings to and drop it onto that E- module.	Expansion Port3						
Please Note: You will lose your original settings because this process duplicates				Expansion Port4			
sensor ID's which connot be the same on the unit.	Expansion Port4						
	and the second						
							and the second se



3. A list of all extended ports will be shown. Each port will display any available extension modules, which will be highlighted in green. Click on the module to go to the sensor settings page.



Figure 3-52. Extended Port1 selection.

4. This will bring you to the Extended Port Sensors page (see Figure 3-53).

Location: System Location Summary	Map	Sound Log	Sensors	Notification	Access	s Control	Settings	Current System Time Applications	e: 06/01/2000 10:17:38 Help
					Sensor Settin	A CONTRACTOR OF			
Sensors Menu					Expansion Por	t1			
Sensor Ports Expansion Boards Expansion Port1 Expansion Port2 Expansion Port2 Expansion Port4 Sound Detector Power Meter Virtual Sensors Help This page shows the list of exter modules connected. Click on a module to change its:	nded	ansion Port1	Control Contro		Module Status Conn adule Currently	ule 0A000764 nected	r Disable your i		lame here
		1	2	3	4	5	6	7	8
	Auto S Stat Onli	us 🔶	Auto Sense	Auto Sense	Auto Sense	Auto Sense	Auto Sense	Auto Sense	Auto Sense
								Click here for se	ensor settings

Figure 3-53. Extended Port Sensors page.

5. Once you have clicked on the "Dual sensors" tab, you will be directed to the familiar-looking Notification Thresholds page (see Figure 3-54). From this page, you can carry out various operations as indicated in the sensor settings tutorials.

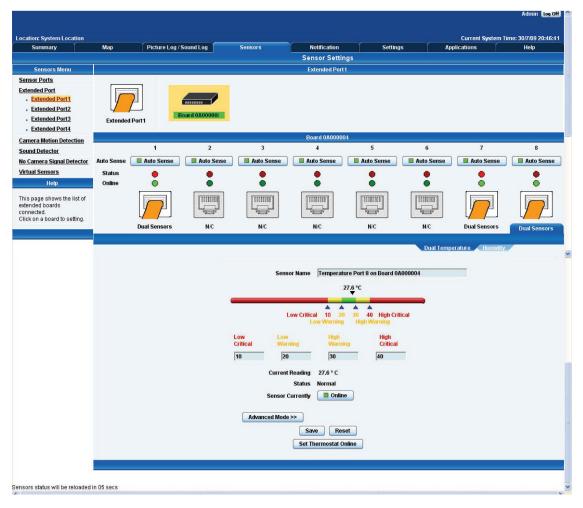


Figure 3-54. Notification Thresholds page.

4. Notifications

If you set up a notification, you can define the action to take when the sensor gives a reading beyond your set thresholds. This enables you to determine how you will be notified that a sensor's reading has reached the specified parameters (high warning, critical, etc.) described in Chapter 3.

This tutorial provides you with the information you need to set up a notification.

To get to the starting point of this tutorial:

- Login as administrator.
- Click the "Notifications" tab.

4.1 Adding a Notification

1. Click on the "Begin Notification Wizard" tab as shown in Figure 4-1.

Location: System Location Summary Map	Sound Log	Sensors	Notification	Access Control	Settings	Current System Time: 06/01/2000 10 Applications Hel	
			Link S	ensor To Action			
Notification Menu				1. Click Notificatio	ons tab		
Begin Notification Wizard	Link Sensor To Action	Escalation		all and a second second	1000		_
Action	Host Name	Sensor Name		Action on Stat	15	Action Name	
Link Sensor To Action	-	-		-		-	
Options		_					
View Notification Log		C	reate Edit	Create Escalation R	emove		
Notification Analyzer		Import notificat	ion from file	Browse	Import Export	r.	
Help		import nouncat	ion nom me	Diowse			
This is an overview of all configured Sensor Action Links. From here you may							_
create, edit and remove Sensor Action Links.Select your desired Sensor Action							
Links. Select your desired Sensor Action Link(s) before making a choice.							
Each line should be descriptive. E.g. If 2.	Click "Begin Notification	Wizard"					
Temperature in Store room Is High Critical Then E-mail Store Room							
Manager.							
To disable or enable the notifications							
without having to delete them, in the Link Sensor To Action listing, just uncheck the							
checkbox to disable them or check the checkbox to enable them							

- Figure 4-1. Notification Wizard tab.
- 2. The Notification Wizard page will be displayed as shown in Figure 4-2.

Location: System Location Summary Map	Sound Log	Sensors	Notification	Access Control	Settings	Current System Time: 06/01/2000 10:24:37 Applications Help
Notification Menu Beain Notification Wixard Action ink Sensor To Action Options View Notification Log Notification Analyzer Help Please select an Action Type from the pull down box. Later your action will be linked to a sensor and status.		otification will be sent. Please		Create Action process of selecting a sensor, creat SIMMP Trap Create Action SMMS Relay FTP Custom Script Fax Siren Wake Up / Shutdown Windows Alert Skype Call/SMS Dry contact Enable/Disable Sensor To Action Alarm Sound Speech Sound Log Telephone Call	Cancel	ng the criteria under Next> Click "Next" to continue

Figure 4-2. Notification Wizard page.

Next, you'll see how to set up a few different ways of notification step by step.

4.2 SNMP Trap

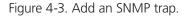
If you set up a notification via an SNMP trap, when your sensor reaches a certain threshold, it will send a notification to your SNMP server.

This tutorial provides you with the information you need to set up an SNMP trap.

To get to the tutorial's starting point:

- Log in as administrator.
- Click the "Notifications" tab.
- Choose "Notifications Wizard."
- Choose "SNMP Trap."
- 1. After selecting to add an SNMP trap, you will need to fill in the following information shown in Figure 4-3.

Action	Name SNMP Trap 1	Enter name for your
Trap Ve	ersion 💿 v1 🔿 v2c 🔿 v3	SNMP notification
SNMP Trap send port(default is:	: 162) 162	Enter the IP address
Destination Ad	dress 192.168.0.XXX	of your SNMP trap
Com	nunity public	
Enter community name of trap	Add Trap Destination	
name of trap		Cancel Next



2. Once this information is correct, click the "Add Trap Destination" button. Input another trap or click on "Next." Enter the parameters shown in Figure 4-4.

Sensors	Notification SNMP Trap Action Wiz
Maximum Times to Resend	0 🐱
Resend Intervals (secs)	10 10 secs

Figure 4-4. Notification parameters.

These parameters set the maximum number of times to send the trap notification and the time interval between each notification.

3. After clicking "Next," you'll see the screens shown in Figures 4-5 and 4-6.

Link Sensor To Action	Escalation	1	
Board 0A000004 Internal RJ45	nodule	Sensor Temperature Port 1 Motion Detector Port 4 Humidity Port 2 Temperature Port 2 Select your Sensor	Sensor Filter Y Humidity Dual Temperature Temperature Motion
		Cancel Next >> Click '	'Next"

Figure 4-5. Parameter Selection, screen #1.

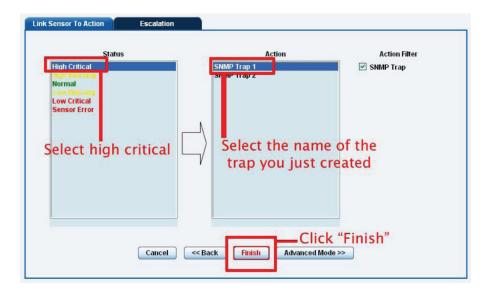


Figure 4-6. Parameter Selection, screen #2.

On these screens, you can select the parameters for when to send the SNMP trap notification. In this example, we selected to bind the SNMP trap to the temperature sensor connected on Port 1. The trap will be sent when the sensor reads a "High Critical" and we bind this to the SNMP trap we just created and named "SNMP Trap 1."

4. Once we have created the parameters for the SNMP trap, we need to make it active. To do this, go back to the "Notifications" tab. (It should look like the screen shown in Figure 4-7.) Click "Create."

Location: System Location Summary	Map	Sound Log	Sensors	Notification	Access Control	Settings	Current System Time: 06/ Applications	01/2000 10:27:20 Help
					ensor To Action			
Notification Menu								
Begin Notification Wizard		Link Sensor To Action	Escalatio	on I				
Action	pine a	Host Name	Sensor H	lame	Action on State	IS	Action Name	
Link Sensor To Action		-	-				-	
Options	_		Click "Create"	Country Country				
View Notification Log Notification Analyzer			CIICK Create	Create Edit	Create Escalation Re	emove		
Help	_		Import no	otification from file	Browse	Import Export		
This is an overview of all configured Sensor Action Links. From here you r create. edit and remove Sensor Action Links Select your desired Sensor Add Link(s) before making a choice. Each line should be descriptive. E g. Temperature in Store room is High Critical Then E-mail Store Room Manager. To disable or enable the notifications without having to delete them, in the Sensor To Action listing, just uncheck checkbox to desable them or check th checkbox to enable them	n ion If Link the							



5. Select the sensor and SNMP trap parameters (see Figures 4-8 and 4-9). First, click on the board that the sensor is attached to and then select the sensor and click "Next."

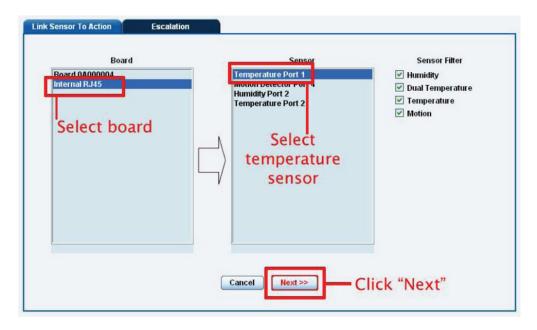
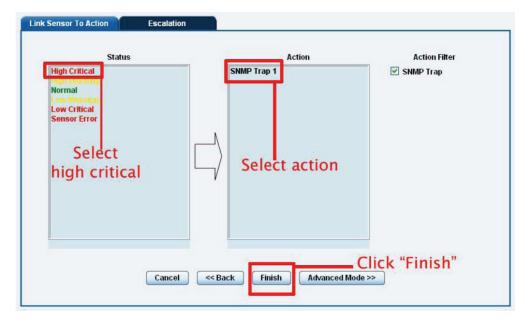


Figure 4-8. Select the sensor.

6. Select the status that you want to issue the notification for, select the action type, then click "Finish."





7. The SNMP trap has been added to the Notifications page.

Board Name	Sensor Name	Action on Status	Action Name
nternal RJ45	Temperature Port 1	High Critical	SNMP Trap 1
	Create Edit	Create Escalation Remove	

Figure 4-10. SNMP trap added.

NOTE: To remove this trap and make it inactive, highlight the notification and click "Remove."

You can repeat this process to set up multiple SNMP traps for different sensors or for multiple SNMP servers, etc.

4.3 E-mail

This tutorial provides you with the information needed to set up an e-mail notification.

To get to the starting point of this tutorial:

- Log in as administrator.
- Select the "Notifications" tab.
- Click "Notification Wizard."
- 1. If you set up an e-mail notification, Figure 4-11 will appear. Click the "Action Name" field and choose a name for your e-mail. Click the "Mail From" and "Mail To" fields and enter the appropriate information, then click "Next."

Location: System Location							Current System Time: 06/0	14/2000 40:20:2
Summary	Мар	Sound Log	Sensors	Notification	Access Control	Settings	Applications	Help
1.				Emai	I Action Wizard			
Notification Men	U	-						
Begin Notification Wizard		Choose a mes	sage title for your ema	ail Action Name E	mail 1			
Action				Mail From				
Add Action								
Link Sensor To Action				Mail To		-		
Options						*		
View Notification Log		Enter	email recipients here	Mail CC		*		
Notification Analyzer						-		
Help				Mail BCC		*		
Please choose a name for yo Action. Descriptive Action namincrease the simplicity of the	nes			Į.		Ŧ		
Complete the Mail To, From a fields with correctly formatted addresses. The Mail To and I are mandatory, Multiple recipi entered by separating addres comma (,) or semicolon (.)	l e-mail From fields ents may be						Cancel Next	
Please select Cancel to leav mode and go back to the me saving.								



Chapter 4: Notifications

2. After clicking "Next," you will get a page where you can input the e-mail name and message. Click the "Customize" button, and the fields will re-write in a format that will allow for an automated e-mail that will display the sensor information. (See Figure 4-12.)

10									
Location: System Location Summary	Map	Sound Log	Sensors	Notification	Access Control	Settings		Current System Time: 06 Applications	5/01/2000 10:32:2 Help
Summary	мар	Sound Log	Sensors			Settings		Applications	нер
				Em	ail Action Wizard				
Notification Menu				Cubicat	Testing Sensor Port 1 on Testi	a Deard is new 00 Unit			
Begin Notification Wizard						-	2		
Action					From: System Name(10.1.5.87) Time: 10:29:19		•		
Add Action					Testing Sensor Port 1 on Testi	ng Board is now 80			
Link Sensor To Action					Unit, status is now Normal				
Options									
View Notification Log									
Notification Analyzer									
Help				1					
This is a preview of the messa be sent to your recipient(s).The message will include the detai to your sensor. Click Customize to change the this message. The items in you	e sent ils relevant format of ur		Click	"Customized"	Customized Attach Graph		Ci	ancel Back Next	
message with a dollar sign an	id						_		
parentheses e.g. \$[TIME] repre data to be imported into your m									
the time of sending. Please clin	ick the								
Macro Description button for a	full list.								
Click Enable Picture to attach a with your message. Select to a either the Current Picture from Camera or the most recent Pic Stored on the Picture Log. Sele Cameras you would like to use source of your picture.	attach the cture ect which								



Location: System Location							Current System Time: 06	01/2000 10:34:15
Summary	Мар	Sound Log	Sensors	Notification	Access Control	Settings	Applications	Help
				Ema	il Action Wizard			
Notification M	enu							
Begin Notification Wizard					[DESCRIPTION] on [BOARD_D	ESC] is now \$[VALUE] \$[
Action					From: \$[SYSNAME](\$[IP]) Time: \$[TIME]	*		
- Add Action					[DESCRIPTION] on \$[BOARD_D			
Link Sensor To Action					[VALUE] \$[UNIT], status is now	\$[STATUS]		
Options								
View Notification Log								
Notification Analyzer						+		
Help				1	Preview Restore Defau			
This is a preview of the me be sent to your recipient(s) message will include the to your sensor.).The sent		Click	"Attach Graph" i	Attach Graph			
Click Customize to change this message. The items is message with a dollar sig parentheses e.g. \$[TIME] t data to be imported into yo the time of sending. Pleas Macro Description button f Click Enable Picture to att	in your n and represent the our message at le click the for a full list.					735555556555	ancel Back Next	
with your message. Select either the Current Picture f Camera or the most recen Stored on the Picture Log. Cameras you would like to source of your picture.	t to attach from the it Picture Select which							

Figure 4-13. Attach graph.

3. Click "Next."

4. Now you need to input your SMTP server address for your e-mail account. (See Figure 4-14.)

SMTP Server		
SMTP Port	25	
SMTP Authentication	🔘 Enabled 💿 Disabled	
SMTP Server Login name		
SMTP Server Password		
Timeout	30 Second(s)	
		Cancel Back Next

Figure 4-14. Input SMTP server address.

- 5. Once this is entered, click "Next."
- 6. Now, as with the SNMP trap, you can select how many times to attempt to resend the e-mail, and the time elapsed between each attempt.
- 7. Click "Next" after you fill in your parameters. (See Figure 4-15.)

Maximum Times to Resend	0 🗸		
Resend Intervals (secs)	10	10 secs	
			Cancel Back Next

Figure 4-15. Select frequency to resend e-mail attempts.

8. Now link the e-mail you just created to the temperature sensor on Port 1. Select the board the sensor is attached to, then select the sensor and click "Next." (See Figure 4-16.)

Link Sensor To Action Board 0A000004 Internal RJ45 Select boa	Temperature Port 1 Mouton Detector Port 4 Humidity Port 2 Temperature Port 2 Select temperature	Sensor Filter V Humidity V Dual Temperature V Temperature V Motion
	Click	

Figure 4-16. Select sensor.

9. Select the status you want to issue the alert for and then select the action type. (See Figure 4-17.)

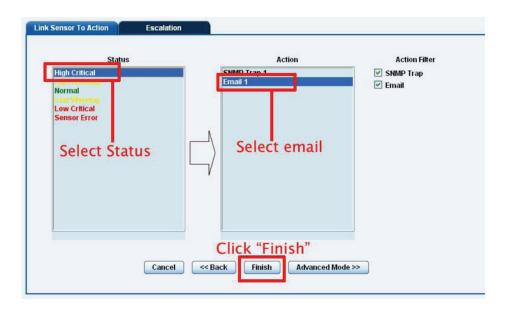


Figure 4-17. Select status and action type.

- 10. Click "Finish." You will now be taken back to screen shown in Figure 4-18.
- 11. Click on "Create."

Sensor Name		Action on Status		Action Name
Temperature Port 1	\Box	High Critical	\Box	🛃 SNMP Trap 7
	🔺 (lick table cell to toggle selection.		
	Crea	te Edit Remove		
Click	on "Create	"		

- Figure 4-18. Create notification link
- 12. Create the notification link as before. Then click "Next."

Link Sensor To Action Escalation Board Board Board Board Internal RU45 Select board	Temperature Port 1 Humidity Port 2 Temperature Port 2 Select temperature	Sensor Filter
	Click	

Figure 4-19. Create notification tab: select board, select termperature.

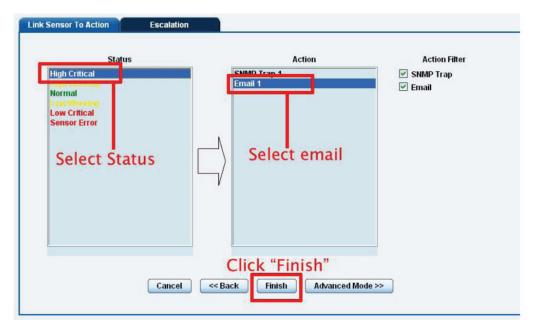


Figure 4-20. Create notification tab: select status, select e-mail.

14. You will now be back at the main notification page. You should now see listed our two notifications, the SNMP trap and the e-mail. (See Figure 4-20.)

As you can see from this page, an SNMP trap is set up to give us notification of a "High Critical," and an e-mail notification that will activate on a "High Warning."

Sensor Name		Action on Status		Action Name
Temperature Port 1	\Box	High Critical	\Box	🛃 SNMP Trap 7
Temperature Port 1	\Box	High Warning	\Box	🖄 Tutorial E-mail
	A -	Click table cell to toggle selectio	n.	

Figure 4-21. SNMP Trap and E-mail Notificiations screen.

4.4 SMS Notification

Set up a notification so that you will be sent an SMS message. This message can be sent via a GSM/GPRS mobile phone connected via a Bluetooth connection or the USB port.

This tutorial provides you with the information you need to set up a SMS notification.

To get to the starting point of this tutorial:

- Log in as administrator.
- Select the "Notifications" tab.
- Click "Notification Wizard."
- 1. From the list of notification types, select SMS and click "Next." You will then be presented with the screen shown in Figure 4-22. Select the "Action Name" field and enter a notification name. Then select the "Phone Number" field and enter the phone number you want to send the notification to. Click "Next."
- 2. You can now either add multiple numbers, delete phone numbers, "Cancel" this action, or click "Next." In this case, we will click "Next." (See Figure 4-23.)

	Current System Time: 31/7/09 17:32
Sensors Notification Settings	Applications Help
SMS Action Wizard	
Action Name SMS 1	Input a
Action Name SMS 1	notification
	name
Phone Number	1
Add Phone Number	
input a phone	
number	Cancel Next

Figure 4-22. SMS Action Wizard, screen #1.

1.100			Current System	Lime: 31/7/09 17:37:2
Sensors No	tification	Settings	Applications	Help
SMS	Action Wiza	ırd		
Action Name	SMS 1			
1772712	one Number Lis			
0	0639052965214			
Phone Number	00639052965		ete Phone Number	Click "Next"
			Cancel	Next

Figure 4-23. SMTP Action Wizard, screen #2.

3. Now we will set up the message that will be sent to the phone. You will see the screen shown in Figure 4-24. Click the "Customized" button to add a macro to your notification.

Sensors No	tification	Settings	Applications	Help
SMS	Action Wiza	ird		
SMS Message	Message 1: Testing Senso Normal From	or Port 1 is now 80, 10.1.5.206	status is now	
Click to cust	Customize		Cancel Back N	lext



NOTE: A macro is a script that returns specific data collected by the unit. In our example, the macro will tell the notification to contain the "description" (sensor name), the value (current sensor reading), and the status (high/low warning, etc.). These macros are common to all sensor notifications.

4. You will now see that the SMS message has changed its format to include the Macro script. (See Figure 4-25.) Click "Next."

			current ayan	
sors	Notification	Settings	Application	s Help
SI	MS Action Wiza	rd		
Fre	om <mark>\$[IP]</mark>			
Text Messa	nge \$[DESCRIPTIO \$[STATUS])N] is now \$[VALUE]], status is now	× .
CALIFORNIA AND AND AND AND AND AND AND AND AND AN	e includi ro script	Restore Defaul	t Macro Des Cancel Bac	
			C	lick "Nex

Figure 4-25. Macro script message.

- 5. Next, we will set up the type of connection. This will depend on the type of modem you are connecting. For the purpose of this tutorial, we will assume you are connecting a GSM/GPRS enabled modem to the serial port. Select COM1 from the list. (See Figure 4-26.)
- 6. Choose the port that the modem is connected to.

Sensors	Notification	Settings	Applications	He
	SMS Action Wiz	ard		
Mobile Pl Mobile Phone Po Del Select for Initializati	ort Speed Auto 👻 ay Times 0	n Colum)		
Select for initializati			Cancel Back	Next
Chaosa t	he connect	ta a kuna u	ou wich to	

Choose the connection type you wish to use

Figure 4-26. Choose the Connection Type You Wish to Use screen.

- 7. You will now be able to select the number of times you want the SMS to be resent and the interval between sending them. (See Figure 4-27.)
- 8. Select the number of times you want to resend this notification and the interval (in seconds). Click "Next."

	and the second		Current System I	ime: 31///09 1
Sensors	Notification	Settings	Applications	Help
	SMS Action Wiza	ard		
Maximum Times to Resend Interval	and a second sec			Click Next"
	nber of tim and interv		Cancel Back	Next

Figure 4-27. Select number of times to resend and intervals.

- 9. Select the sensor that you want to bind this notification to.
- 10. Choose the board and sensor, then click "Next."

ioard 0A000004 xternal RJ45	Temperature Port 1 Motion Detector Port 4 Humidity Port 2 Temperature Port 2	 ✓ Humidity ✓ Dual Temperature ✓ Temperature ✓ Motion

Figure 4-28. Choose board and sensor.

High Critical High Warning	Action SNMP Trap 1 Email 1	Action Filter
Normal Low Warning	SMS 1	Email
Low Critical	-	
Sensor Error		

Figure 4-29. Link sensor to action tab.

- 11. This time we will use this notification for a low warning. Then select the notification name we assigned, in this case we chose "SMS 1." Click "Finish" to finalize this. (See Figure 4-29.)
- 12. Now we will add the SMS notification to our active list. This is the same process as for the others—simply click on "Create" and then select the appropriate parameters. Follow Steps A–F below and on the next page.
 - 1. Select the board the sensor is connected to.
 - 2. Select the sensor.
 - 3. Click "Next."

Board Roard 0A000004 Internal RJ45	Sensor Temperature Port 1 Moutorn Detector Port 4 Humidity Port 2 Temperature Port 2 2	Sensor Filter V Humidity Uual Temperature V Temperature V Motion
	Cancel Next >> 3	

Figure 4-30. Steps 1-3.

- 4. Select the status you want to issue the alert for.
- 5. Select the action type.
- 6. Click "Finish."

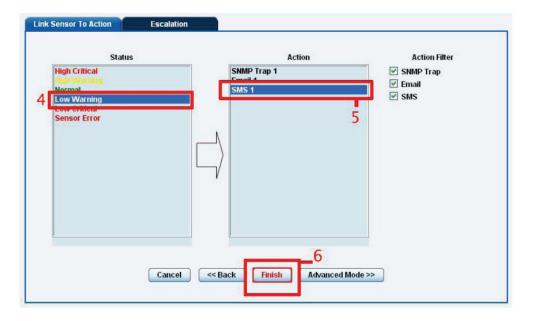


Figure 4-31. Steps 4-6.

13. You will now be back at the main notification page (Figure 4-32). The page should display three types of notifications: the SNMP trap, e-mail, and SMS.

Sensor Name	Action on Status	Action Name
Temperature Port 1		້ອຽ SNMP Trap 7
Temperature Port 1	High Warning) 🔁 Tutorial E-mail
Temperature Port 1	Low Warning	Tutorial SMS notification
	Click table cell to toggle selection.	
	Create Edit Remove	



For the purposes of this tutorial, we will not cover the setup of every type of notification. However, with this information you should be able to follow the procedure for the other types of notifications easily, as they all follow a similar format. If you have questions, contact Black Box Technical Support at 724-746-5500 or info@blackbox.com.

5. Mapping

The mapping feature allows instant visual feedback about a sensor's position and status. It is a useful monitoring tool for a setup with several sensors in different positions.

This tutorial provides you with the information needed to set up the mapping feature.

To get to the starting point of this tutorial:

- Log in as administrator.
- Click the "Map" tab.

5.1 Adding a Map

1. First, we need to add a picture file to be used as the map. This can be a blueprint of your office, a 3D picture of your office/site being monitored, or a photo of the wiring closet you are monitoring.

NOTE: The maximum map file size is 512 KB.

C Location: System Location							Current System Time: 06/01	1/2000 10:37
Summary	Мар	Sound Log	Sensors	Notification	Access Control	Settings	Applications	Help
· · · · ·				Sensor I	Map [Untitled 01]			
Map List								
No Map Uploaded								
Online Sensors								
Module 0A000764								
Main Module								
Options		(
Add New Map	Click add	i new map						
Unlock This Map								
Change Picture of This				Please u	ipload map file.			
Rename This Mag								
Reset This Map								
Remove This Map								
Help								
Place links on map: Press the U then drag the Sensor or Sub Map								
map.								
More information: Left click on S display real time sensor data.	ensor icons to							
Display a map containing the Se	ansor Press				> ^ V			
the sensor description on the lef					100.00 %			
670	77			Zoom		FullS	reen Mode	
				200111		- unov		
				Refresh Map Sensors	Interval (sec.) 5 Apply			
1								

Figure 5-1. Click on the "Map" tab.

2. Browse to the file on your hard drive that you want to use.

	Map Wizard
Please select a Map picture to upload. JPEG or GIF format (Maximum 512 kB).	
Upload new Mag	Browse
ck "Browse" to navigate	to your selected file Cancel Next

Figure 5-2. Browse to selected file.

3. In this tutorial, we are going to use a 3D map of a town center we are monitoring.

Location: System Location	n						Current System Time: 06/01/2	2000 10:59:46
Summary	Мар	Sound Log	Sensors	Notification	Access Control	Settings	Applications	Help
				Sensor M	ap [town center]			
Map L	ist			N	lap Wizard			
town center					ap mara			_
Online Se		Map uploaded succ Please enter the Ma	essfully.					
Optio			ip name					
Add New	Map							
Unlock Th Change Picture Rename Ti Reset Thi Remove Ti Hely Place links on map: Pres	of This Map is Map is Map is Map			Enter Map Name	town center	Choose your map na		
then drag the Sensor or S map.	ub Map link on to the						Back Next	
More information: Left cli display real time sensor of							Click "N	lext"
Display a map containing the sensor description or								



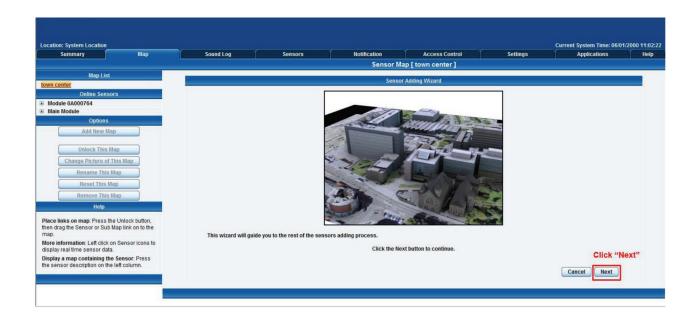
4. Choose to have the map as a top-level map.

	Map Wizard	
This Map can be ass Please assign paren	igned as a sub-Map or as a top level map. t map for this map.	
	Select Parent Map Set as Top Level 💌	
	Set map as top level	Back Next
		Click "Nex

- Figure 5-4. Enter map level.
- 5. You will now have the option to finish or to add sensors to your map. For this tutorial, click "Next."

	Map Wizard	
Map added successfully.		
Click Finish to close this wizard or click N	lext to continue to Sensor Adding Wizard.	
		Finish

- Figure 5-5. "Finish" or "Next."
- 6. You will now be taken to the map page where it will display your map. To add sensors, click "Next."



- Figure 5-6. Sensor map.
- 7. After clicking "Next," click the "Unlock" button. This enables you to add sensors to the map.

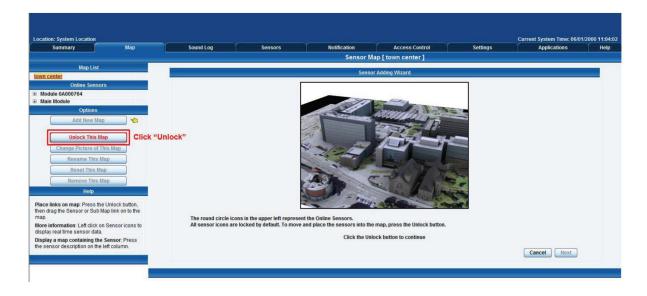


Figure 5-7. Add sensors to map.

8. You can now drag sensor icons and position them on the map.

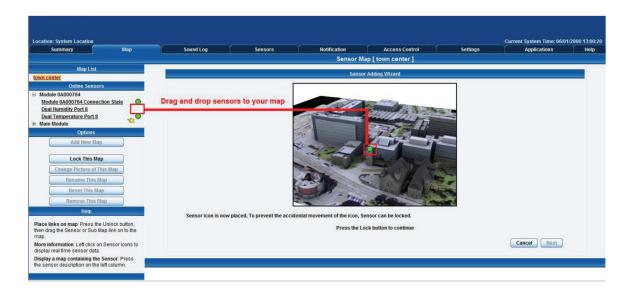


Figure 5-8. Position sensor icons on map.

9. After you have positioned the sensors in the correct location of your map, click "Lock."

Location: System Location							Current System Time: 06/01/	2000 13:02:20
Summary	Мар	Sound Log	Sensors	Notification	Access Control	Settings	Applications	Help
				Sensor I	Map [town center]			
Map Lis	t	(J.:		Sens	or Adding Wizard			
town center				Joine				_
Online Sen 5 Module 0A000744 Module 0A000746 Cam Dual Temperature Port Sent Temperature Port Add New N Lock This I Change Picture on Rename This Renove This	ection State	re when sensors have	been					
Help		Sensor icon is now pl	aced, To prevent the accident	al movement of the icon,	Sensor can be locked.			
Place links on map: Press then drag the Sensor or Su map.					Lock button to continue			
More information: Left click display real time sensor da Display a map containing t	ta.						Cancel Next	
the sensor description on the								

- Figure 5-9. Click "Lock."
- 10. Finally you click on the "Finish" button to save your changes.

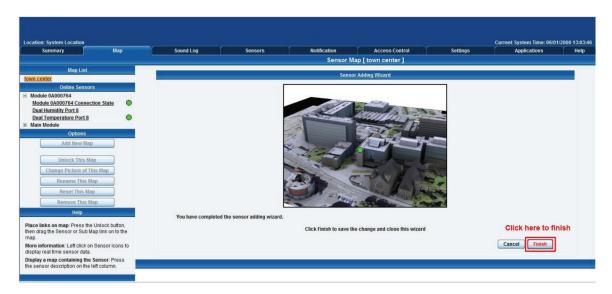


Figure 5-10. Save changes.

5.2 Monitoring via the Map Interface

Now we are going to look at how to monitor the sensor status and use the map interface.

1. To see further information about a sensor, you can click on its icon. First, you must click on the "Unlock Icons" button.

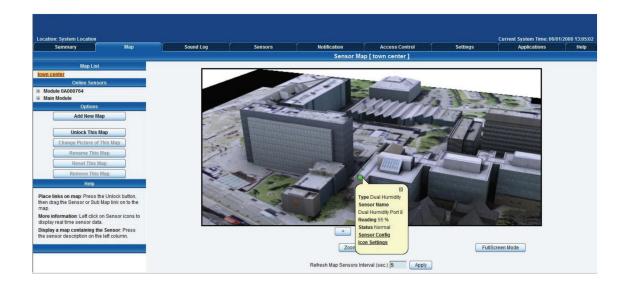


Figure 5-11. Using the map interface.

If you connect other sensors, these too can be dragged and positioned on the map.

6. Filters

6.1 Sensor Filters

1. The ServSensor comes equipped with the option to filter your sensor information that is displayed within the summary page. To enter the filter menu, select "Sensor Filters" from the drop-down tab on the left side of the page.

Summary Setting		Sensors	Notification	Access Control	Settings	Applications	Help
	in the second se		Sensor In	formation			
Layout Setting	Host Name	<u> </u>	Type 🔺 🔻	Sensor Name 🔺 🔻	Rea	ading 🔺 🔨	Status A V
Sensor Filters	Main Module		Module	Main Module			Normal
	Module 0A000764		Module	Module 0A000764			Normal
Sort by : Host Name			Sensors	status will be reloaded in 08 secs			
Advanced Filter				g (33 messages)			
Display Status	1 000000100.10.00.0	T	A ACCOUNTS OF A CONTRACT OF A CONTRACT.	g (55 messages)			
Display Status Display Sensor Type	1 2000/01/06 10:43:04 2 2000/01/06 10:38:16		27.5 °C, status is Normal 30.0 °C, status is High Warning				
Display Host Name	3 2000/01/06 10:11:59		8 on Module 0A000764 is 26.8				
	4 2000/01/06 10:11:59		Module 0A000764 is 56 %, sta				
Search :	5 2000/01/06 10:11:55 baai maning port on invadie baabon of is 30 % status is normal						
	6 2000/01/06 10:08:23	Module 0A000764 Con	nection State on Module 0A000	764 status is Normal			
Apply Filter Clear Filter	7 2000/01/06 10:03:29	Module 0A000764 is di	sabled				
	8 2000/01/06 05:55:01	Temperature Port 8 is	27.5 °C, status is Normal				
Expand All Modules Collapse All Modules	9 2000/01/05 16:18:52	Temperature Port 8 is	30.0 °C, status is High Warning				
	10 2000/01/05 10:31:42	Temperature Port 8 is	27.5 °C, status is Normal				
eload Sensor Interval : 10 secs. Apply	Click here to view fi		System	Log will be reloaded in 09 secs			

Figure 6-1. Select sensor filters.

2. Once you click the tab, you will be able to select your filter results by altering various fields of information contained within the sensor filter window.

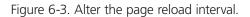
Sensor Filters	
Sort by Host Name 💌	Sorting options are found here
Advanced Filter	
 	—Select various options to customize your viewing window data
Apply Filter Clear Filter Expand All Modules Collapse All Modules	Click here to save your changes
Reload Sensor Interval : 10 secs. Apply	

Figure 6-2. Add information fields.

Chapter 6: Filters

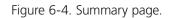
3. You can alter the page reload interval by using these options.





4. Once you have selected your preferred filter options, your new settings will be displayed in the "Sensor Information" window found on the Summary page.

Summary	Мар	Sound Log	Sensors	Notification	Access Control	Settings	Applications	He	lelp
Summary Setting				Sensor l	nformation				
La	ayout Setting		Host Name 🔺	Type 🔺 🔻	Sensor Name 🔺 🔻	Rea	ading 🔺 🔨	Status 🔺 🔻	
S	ensor Filters	🗉 Main N	lodule	Module	Main Module			Normal	
	And the second second	🕀 Module	e 0A000764	Module	Module 0A000764			Normal	
Sort by :	Host Name 💌			Sensors	s status will be reloaded in 10 secs				
Ad	Ivanced Filter	-		System L	og (33 messages)				
Display Status		1 2000/01/	06 10:43:04 Temperature Po	ort 8 is 27.5 °C, status is Normal					
Display Sensor T	Гуре	2 2000/01/		ort 8 is 30.0 °C, status is High Warning	q	Voir etc.	annan ana dianta	und have	
Display Host Nar	me	2 2000/1/06 10:32:50 Temperature Ports is 30.0°C, status is right warning 3 2000/1/166 10:11:55 Dual Temperature Ports 8 on Module 0A000764 is 26.8°C, status is Normal					iyed here		
Search :		4 2000/01/	06 10:11:59 Dual Humidity P	ort 8 on Module 0A000764 is 56 %, sta	atus is Normal				
Search :		5 2000/01/	06 10:11:55 Module 0A0007	64 is enabled					
Annali Filtera	Clear Filter	6 2000/01/	06 10:08:23 Module 0A0007	64 Connection State on Module 0A000	0764 status is Normal				
Apply Filter	Clear Filter	7 2000/01/	06 10:03:29 Module 0A0007	64 is disabled					
		8 2000/01/	06 05:55:01 Temperature Po	ort 8 is 27.5 °C, status is Normal					
Expand All Module	Collapse All Modules			ort 8 is 30.0 °C, status is High Warning	g				
		10 2000/01/	05 10:31:42 Temperature Po	ort 8 is 27.5 °C, status is Normal					
eload Sensor Inten	val: 10 secs. Apply			Syster	m Log will be reloaded in 09 secs				_



6.2 Syslog Filters

Syslog filters enable you to customize your syslog window. To begin. select the "Syslog Filters" tab found on the summary page.

Summary Map	Sound Log	Sensors	Notification	Access Control	Settings	Applicati	tions Help
Summary Setting			Sensor In	Iformation			
Layout Setting	Host Name		Туре 🔺 🔻	Sensor Name 🔺 🔻	Re	ading 🔺 🔻	Status 🔺 🔻
Sensor Filters	<u>Main Module</u>		Module	Main Module			Normal
Syslog Filters	Module 0A000764		Module	Module 0A000764		-	Normal
Sort by : Date	Syslog filter settin	igs are found here	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	status will be reloaded in 04 secs			
Number of display items per page 10 -	1 2000/01/06 10:43:04	Temperature Port 8 is 2	System Lo 7.5 °C, status is Normal	og (33 messages)			
Advanced Filter	2 2000/01/06 10:38:16		0.0 °C, status is High Warning				
Display Log Level	3 2000/01/06 10:11:59		8 on Module 0A000764 is 26.8				
Display Log Type	4 2000/01/06 10:11:59 5 2000/01/06 10:11:55		Module 0A000764 is 56 %, sta	itus is Normal			
Display Sensor Type Display Sensor Status	6 2000/01/06 10:08:23		ection State on Module 0A000	764 status is Normal			
Jispiay Sensor Status	7 2000/01/06 10:03:29	Module 0A000764 is dis					
ply Filter Clear Filter Clear Syslog	8 2000/01/06 05:55:01	Temperature Port 8 is 2	7.5 °C, status is Normal				
	9 2000/01/05 16:18:52		0.0 °C, status is High Warning				

Figure 6-5. Syslog Filters tab.

Once you click the tab, you will be able to select your filter results by altering various fields of information contained within the syslog filter window.

Syslog Filters	
Sort by : Date v Number of display items per page 10 v Advanced Filter	By clicking on the "+"
 Display Log Level Display Log Type Display Notification Display Sensor Type Display Sensor Status Apply Filter Clear Filter Clear Sys Log Reload Syslog Interval : 10 secs. Apply	sign, a drop down list of options will become available.

Figure 6-6. Drop-down menu.

By checking and unchecking various boxes within the Syslog filter window, you can customize your displayed results contained within the syslog filter.

Sensor Filters	
Syslog Filters	
Sort by : Date V Number of display items per page 10 V	 Sorting options are found in the drop down menu
Advanced Filter	
 Disolay Log Level Critical Varning Varing Voltices nformation Disp ay Log Type <u>vestem Log</u> vestem Log <li< td=""><td> Various check boxes can be ticked and unticked to customize your filter window </td></li<>	 Various check boxes can be ticked and unticked to customize your filter window
Apply Filter Clear Filter Clear Sys Log	Click here to save your
Reload Syslog Interval : 10 secs. Apply	selections

Figure 6-7. Customize syslog filter results display.

Chapter 6: Filters

You can alter your reload interval by using the options shown below.





Once you have selected your preferred filter options, your new settings will be displayed in the "System log Information" window found on the Summary page.

ation: System Location Summary Map	Sound I	og Sensor	s Notification	Access Control	Settings	Applicatio	Time: 06/01/2000 1 ns H	lelp
Summary Setting			Sens	or Information				
Layout Setting		Host Name 🔺	Type ▲ ¥	Sensor Name 🔺 🔻		Reading 🔺 🔻	Status 🔺 🔻	
Sensor Filters	🗉 Mai	Module	Module	Main Module			Normal	
Syslog Filters	E Moo	ule 0A000764	Module	Module 0A000764			Normal	
			Sen	sors status will be reloaded in 04 secs				
Sort by : Date			Syste	n Log (33 messages)				
Number of display items per page 10 💌	1 2000/	1/06 10:43:04 Temperature	Port 8 is 27.5 °C, status is Normal					
Advanced Filter	2 2000/		Port 8 is 30.0 °C, status is High War	ning	Svelog filter	settings are dis	bovelos	
Display Log Level	3 2000/	1/06 10:11:59 Dual Temper	ature Port 8 on Module 0A000764 is	26.8 °C, status is Normal	here	settings are us	spiayeu	
Display Log Type			y Port 8 on Module 0A000764 is 56 %	, status is Normal	nere			
Display Sensor Type			0764 is enabled					
Display Sensor Status			0764 Connection State on Module 0/	000764 status is Normal				
			0764 is disabled					
Apply Filter Clear Filter Clear Sys	og 8 2000/	1/06 05:55:01 Temperature	Port 8 is 27.5 °C, status is Normal					
	9 2000/	1/05 16:18:52 Temperature	Port 8 is 30.0 °C, status is High War	ning				

Figure 6-9. Saved syslog filters display.

7. Making the ServSensor Visible on the Internet

The setup we have just created will enable you to access your ServSensor V4E Lite on a local area network (LAN), monitor via the Web based interface, or with SNMP traps.

But, what if you want to be able to remotely access your unit from anywhere in the world? This is possible; however, the following steps are only a guide. Your exact setup and configuration will often depend on your network equipment. You are going to need access to your router, if you are using one, and know whether your IP address is static or dynamic.

1. Suppose your ServSensor is connected to a router on your network, and the following IP addresses are assigned:

Your unit's IP address is the default 192.168.0.100.

Your computer's IP address is 192.168.0.200

Your router's IP address is 192.168.0.300

2. To find out your router's external IP address, go to www.whatsmyip.com

Suppose your router's external IP address is 278.67.04.09

3. You now need to set up port forwarding on your router. This varies depending on your router's model. Generally, you need to point your browser to your router"s IP address (in this case 192.168.0.300). This will then enable you to log into your router's administration interface. You can find how to go about doing this for your router on www.portforward.com

For an example of how to do this for a commonly used router, follow this link :-http://www.portforward.com/english/routers/port_forwarding/Linksys/WRT54G/HTTP.htm

You need to set up your router's HTTP forwarding to Port 80. This will then mean when you access your router using the external IP address, you will be forwarded to your unit's internal IP address.

- 4. To test this, open your Web browser, and go to your external IP address (in our example 278.67.04.09). If you're using a dynamic IP address, check it again before doing this because it may have changed since the start of this tutorial.
- 5. To make this easier, you could use a Dynamic Name Server (DNS). This means that you no longer need to remember IP addresses or use www.whatsmyip.com to find out your IP address. You will instead register a domain name (for example mysensorProbe2.homeip.com). This will then automatically point to your router's external IP address (e.g. 278.67.04.09). This will require you to register the domain name and open an account with a DNS service provider. We recommend www.dyndns.com because it allows you to register up to five free domain names.
- 6. If you have set up everything correctly, you will now be able to access your unit from anywhere in the world simply by pointing your Web browser to your DNS address.

8. Frequently Asked Questions (FAQs)

Question: I cannot see the temperature sensor displayed on summary page.

Answer: After logging in for the first time with the temperature sensor connected, you may need to do the following.

Summary Setting	
Layout Setting	
Camera Setting	
Sensor Filters	
Syslog Filters	
Sort by : Date Vumber of display items per page 10 Vumber 10 Vu	
Advanced Filter	
Display Log Level	
Critical	
Varning Varning	
✓ Notices	
✓ Information	
🖃 Display Log Type	
System Log	
Sensor Log	
Display Notification	
🖃 Display Sensor Type	Click on "Display sensor type" and check the box
✓ Temperature	marked "Temperature"
✓ Water	maned femperature
Humidity	
Dry contact Array	
Dual Temperature	
Motion	
Display Sensor Status	
Apply Filter Clear Filter Clear Sys Log	Then click "Apply Filter"
Reload Syslog Interval : 10 secs. Apply	

Figure 8-1. Select sensor to display.

Next, click on "Apply Filter." The temperature sensor should then be displayed in the list of connected sensors.

Question: I cannot access my unit's Web interface.

If you're having issues with network connectivity, first make sure that the link100 LED is lit on the front display of the unit. If this is not lit, then no network connection is present.

Answer:

- 1. If connected directly to a PC, make sure you're using a good quality crossover cable.
- 2. Make sure you're using a standard CAT5 Ethernet cable to connect to your network.

Question: What do my LED lights mean?

Answer: The following diagrams show what the various LED displays mean.

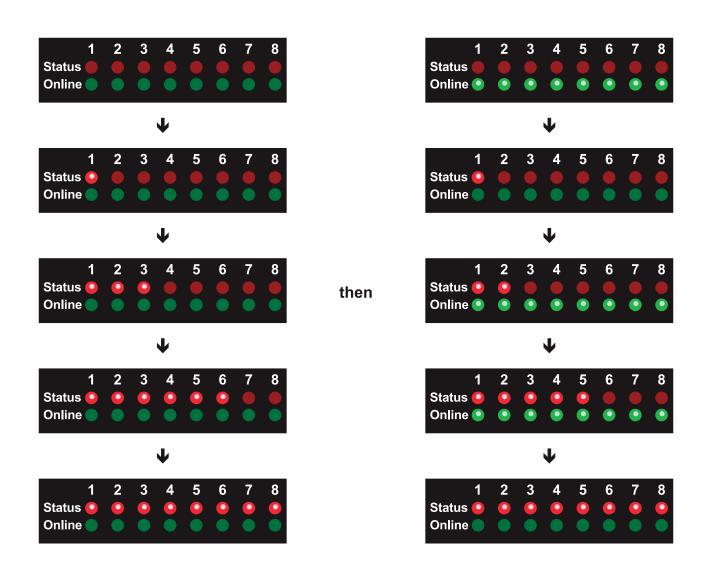


Figure 8-2. LED patterns in Normal mode.

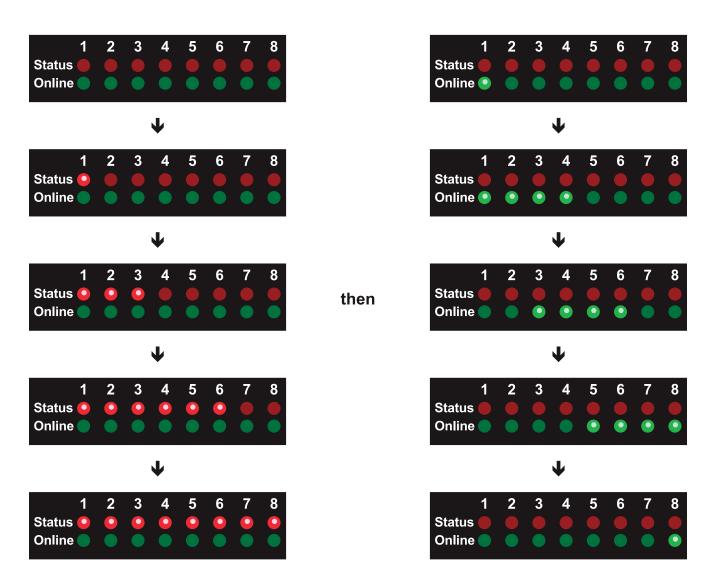
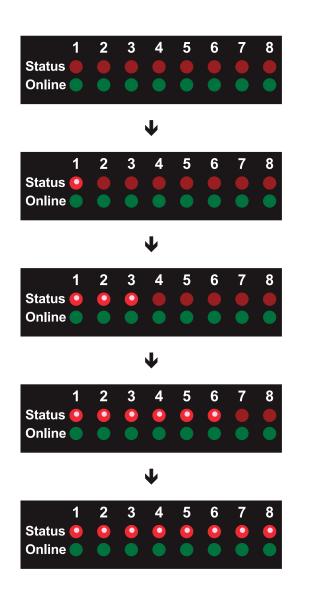


Figure 8-3. LED patterns in Safe mode.



1 2 3 4 5 6 7 8 Status • • • • • • • • • • • •

Figure 8-4. LED patterns in Recovery mode.

then

LEDs run clockwise after the power is connected.

From left to right, each LED indicates:

1st LED: U-Boot init

2nd LED: Kernel loaded with good CRC

3rd LED: Board init

4th LED: Serial port

5th LED: Ethernet

6th LED: NOR Flash

7th LED: NAND Flash

8th LED: Root file-system mounted. Starting initialization process

After the root file-system is mounted, all green LEDs will be flashing, and red LEDs light increasingly from left to right. The onboard Web server can be accessed during this time and shows a splash screen with boot details. After the boot process is finished, the LEDs show the status of the online sensors.

Question: I forgot my unit's IP address.

Answer: If you forget the IP address of your unit, you can simply press the reset button on the back of the unit. This will then announce the IP address through the unit's internal speaker.

Question: I forgot the password for my unit.

Answer: Hold down the reset button for seven seconds. This will turn off the use password feature for the Web-based interface. This will remain turned off until you hold the button down for a further seven seconds, or the unit announces "Now turning off password checking."

NOTE: This will turn off the password checking for accessing the Web interface only; you still have to enter the password when you access the system via Telnet.

Question: Can I use DHCP to assign my unit's IP address?

Answer: Yes, you can use DHCP to assign the IP address. The unit ships with this disabled. To turn it on, you need to log into the Web interface and navigate to the Ethernet settings via the "Security" tab, "Ethernet Network," and then click on the "Yes" button for "Use DHCP."

Location: System Location								Current System Time: 07/01/2	
Summary	Map 🥤	Sound Log	Sensors	Notification		ess Control	Settings	Applications	Help
					Ethernet Netwo				
Setup		Olive		Default Interface	Use this interfa	ace as default gate	eway		
E General		Спск уе	s to activate DC						
Connectivity				IP Address	10.1.5.87				
Ethernet Network				Subnet Mask	255.255.255.0				
Wifi Network				Gateway IP Address	10.1.5.5				
Modbus			l.	omain Name Server	10.1.5.5				
SNMP					00-0B-DC-00-5A-				
SNMPTraps			L.	Ethernet Media Mode					
Bluetooth					Save	t			
Dial-In Modem									
Dial-Out Modem									
OpenVPN Client									
Serial to Network Proxy	v								
Server Integration	•								
System Administrator									
10 Miles									
Help									
This page allows the system configured centrally by DHCF									



NOTE: If the unit has a static IP address assigned, it will no longer send out DHCP requests. If you later want to turn DHCP back on, you can do that using the Web-based interface.

Question: How do I set up my routing table?

Answer: To set up the routing table, open a DOS window (start, run type command press enter) and at the command prompt, then enter: >route add 192.168.0.100.10.1.1.20

Where 10.1.1.20 is the IP address of the Ethernet interface on the PC that the unit is plugged into with the crossover cable.

Now ping* 192.168.0.100 to see if the connection was successful.

Question: How can I change my administrator password?

Answer: If you want to make your unit more secure and change the administrator password from the default (public) to your own choice, follow these steps:

1. Log into your unit using the default password.

2. Click the "Settings" tab.

Location: System Location Summary	Мар	Sound Log	Sensors	Notification	Access Control	Settings	Current System Time: 07/01/ Applications	Help
				User & C	Group Management			
Setup ≆ <u>General</u>		Users	Groups		1	. Click "Setting	gs"	
E Connectivity		User Name 🔺 🔻	Group Name 🔺 🔻		Description	Login s	ession timeout (minutes)	
Server Integration System Administrator Password Checking User & Group Manageme System Maintenance Services and Security System Log Heartbeat Messages	2. Select this	Admin * User * BobSmith * Cannot remove.	Administrator User System Guest		uilt-in account for administrator Built-in account for user Guest Remove Properties		60 60 60	
Help This page allows enabling, cr changing of the User and Adm								



3. Change the password.

Summary	Мар	Sound Log	Sensors	Notification	Access Control	Settings	Applications	Help
				User & G	roup Management			
Setup								
General		Users	Groups					
Connectivity		User Setup						
Server Integration			ame, password, description a	nd then select the member	of the group.			
System Administrator		-						
Password Checking					Jser Details			
User & Group Managem	ent		User Name	Admin	_	User Cannot	Change Password	
System Maintenance			Password				change rassword	
Services and Security			Confirm Password		 1. Change pass 	sword here		
System Log			Description	Built-in account for adn	ninistrator			
Heartbeat Messages		Log	in session timeout (minutes)	60				
Help	4		Member of Group	Administrator - Go	o Group Setup			
his page allows enabling, cr								
hanging of the User and Adr	min password.			Cance	Finish 2. C	lick here		
				Caller		NICK HEIE		

Figure 8-7. Change user and/or admin passwords.

Question: What function do the different types of notifications provide?

Answer: The notifications are used to notify you when a sensor reading has hit a certain preset "critical" threshold. There are many ways you can be notified. They are as follows:

SNMP Trap: This form of notification sends out a signal to your SNMP server.

E-Mail: This sends a notification via e-mail.

SMS: This sends an SMS message to your mobile phone.

MMS: This will send you a multimedia message to your mobile phone. This can include an image captured from one of the sensor probe's cameras.

Relay: The relay is used as a switch, for example, it could switch on an air-conditioning unit if the temperature reading of a temperature sensor reaches a certain threshold.

Alarm sound: This notification will sound an alarm.

Speech: Creates a text-to-speech notification.

Telephone call: Will call you and play a prerecorded message or a text-to-speech message.

Custom script: Allows you to load a custom script that runs on a sensor reading a preset parameter.

Fax: Will send a fax to you with a notification message.

Sound log: Creates a log of sound captured with the internal/external microphone.

Siren and strobe: Will activate a siren and strobe light.

Wake up/shut down: This will send a signal to wake up or shut down a server.

If you require any assistance in setting these up, contact Black Box Technical Support at info@blackbox.com.

Question: Can I connect my unit via Wi-Fi?

Answer: Yes, you can connect the unit via Wi-Fi. Simply plug a USB dongle into the USB port on the rear of the unit. You then need to configure your connection type and encryption key, etc. Do this from the Web-based interface in the "Settings" tab and the connectivity option.

	Wifi Network
Wireless Adapter	⊙On ○Off
Default Interface	🔲 Use this interface as default gateway
Use DHCP	⊖Yes ⊙No
IP Address	192.168.0.10
Subnet Mask	255.255.255.0
Gateway IP Address	10.1.1.205
Domain Name Server	10.1.1.2
Wireless Mode	⊙ Infrastructure (Access point)
	🔿 Ad-hoc ch 🚺 🔽
Wireless SSID	<u> </u>
Encryption Mode	⊙ Disabled ○ 64bit WEP
Link Status	Not connected
	0%
Signal Strength	L
	Save Reset

Figure 8-8. Win Network screen.

Question: What is the Heartbeat message?

Answer: This setting is to have the ServSensor notify you that it is still running. You can be notified by either traps or by e-mail:

Alive Trap settings: Send Keep Alive Traps (Default Off): Select on if you want the system to send Alive Traps.

Destination: Enter the IP address of the server to send traps to.

Community: SNMP community string.

Resend Interval (mins): The period of time between each keep-alive trap. Values range from 1 to 65535 minutes.

Question: What is the network sniffer?

Answer: The network sniffer application can be used to capture network packets running to and from the securityProbe, and all the network traffic. You can then import the captured file into TCP dump for details of these network packets. The network trace will help in debugging any network problems; for example, if e-mail cannot be sent.

Question: Can I use the camera for a videoconferencing call?

Answer: Yes, it is possible to use the camera and the integrated microphone to make a videoconferencing call. You need the software called "OpenPhone" running on your computer. This is included on the CD-ROM that came with your unit. (Look for OpenPhone.exe). Next follow these steps:

1. Initiate connection from OpenPhone (PC) to ServSensor.

a. Open the program by double clicking "openphone.exe"

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- b. Click the "Make Call" button, enter the IP address of the sensorProbe8Linux/cameraProbe8 to initiate a call in the "Address" field. Then, click "OK."
- c. The unit will automatically respond to a call and establish the connection. You will then see the video and hear sound from the unit.
- 2. Initiate connection from a ServSensor to OpenPhone (PC).
 - a. Open the program by double clicking "openphone.exe"
 - b. On the Web interface, click on the "Applications" tab, and click on "Video Conferencing."
 - c. Select the "Call to" option and enter the IP address of the PC running OpenPhone. Click "Save" to discover your computers IP address in the command prompt, type "ipconfig."
 - d. On the OpenPhone application, click "Answer" to accept the call.
- 3. Connection between two sensorProbe8Linux/cameraProbe8 (only voice conference).
 - a. On the Web interface of the calling sensorProbe8Linux/cameraProbe8, click on the "Applications" tab, and click "Video Conferencing."
 - b. On the right pane, select the "Call to" field and enter the IP address of the receiving sensorProbe8Linux/cameraProbe8 into this field. Click "Save."
 - c. The connection should automatically establish.

You can end the videoconference call by doing the following:

- 1. End the call on OpenPhone (PC): To end call, click the "Hang Up" button on the OpenPhone. This method can be used to end the call between the system and OpenPhone.
- 2. End the call on the unit: From the Web interface, click on the "Applications" tab and click on "Video Conferencing." On the right pane, select "End call and wait for a new incoming call" option. Then, click "Save."

Black Box Tech Support: FREE! Live. 24/7.



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